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IT pros are conspicuous by their absence from Sarbanes-Oxley planning. Page 14

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State, U.S. Lawmakers Pushing To Hinder Offshore Outsourcing

Issue could be a hot topic in next year's presidential election

BY PATRICK THIBODEAU
WASHINGTON

Federal and state lawmakers are accelerating efforts to stem offshore outsourcing, chiefly by setting restrictions on the use of foreign labor in government contracting.

At the same time, the issue is drawing attention in the presidential race. For instance, Sen. John Kerry (D-Mass.), who's seeking the Democratic nomination, introduced legislation last month requiring call center employees to disclose their location at the commencement of each call. When introducing the legislation, Kerry cited a Gartner Inc. estimate that one in 20 IT jobs at user companies will move offshore by the end of next year.

There are at least nine bills pending in the U.S. Congress aimed at barring foreign workers from government contracts, and four states — North Carolina, New Jersey, Michigan and Indiana — are considering similar legislation, according to a study of pending bills assembled by

Offshore, page 16

Users Worry About 'Zero-Day' Attacks, Try to Secure Systems

System configuration rules, incident-response plans may reduce threat

BY JAIKUMAR VIJAYAN
NEW YORK

So-called zero-day attacks that take advantage of software vulnerabilities for which there are no available fixes are starting to be viewed as a major threat to data security, said IT managers at the InfoSec 2003 conference here last week.

More than ever, the threat of such attacks underscores the need for companies to set and then require the use of safe-configuration policies for the packaged software and homegrown systems they use, conference attendees said.

They also stressed the importance of having well-developed patching and incident-response capabilities to help minimize the havoc that at-

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MINIMIZING MICROSOFT

SPECIAL REPORT

Textron Financial CIO Dave Raspallo (left) is among a growing cadre of IT pros who are determined to cut their desktop costs by adopting strategies that aren't built around a fully loaded PC for every user. Patrick Thibodeau and Carol Sliwa look at the alternative paths some companies are taking in our special report beginning on page 6.

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- Early adopter of Linux wins big. PAGE 6
- Outsourcing is an option. PAGE 8
- Benetton CIO discusses a desktop strategy that involves handhelds and portals. PAGE 8

Criticism of Electronic Voting Machines' Security Is Mounting

Equipment malfunctions, vulnerable systems stall efforts to supplant old polling methods

BY ELIZABETH HEICHLER

As the presidential primary season approaches, a debate is raging about electronic voting — and IT professionals and computer scientists are among the loudest critics.

The issue has grown in urgency thanks to the Help America Vote Act of 2002, Congress' attempt to forestall a repeat of the infamous Florida election debacle of 2000. The bill, known as HAVA, makes as much as $3.8 billion in funding available to states in the short term for replacing older punch card and lever election equipment — reforms that must be implemented by January 2006.

Manufacturers of the latest generation of electronic touch-screen voting devices, known as direct recording electronic machines, are poised to reap the rewards of the spending spree. But controversy roils over whether DREs are secure and bug-free.

Incidents of electronic voting machine malfunctions have fueled the fire, as have thorough security reviews of DREs that have been commissioned recently by election officials in various states. Those reviews found high-risk vulnerabilities in the systems sold by Diebold Inc., Election Systems & Software Inc., Sequoia Voting Systems Inc. and Hart InterCivic Inc.

For its part, Hart viewed Compuware Corp.'s review of its system on behalf of the

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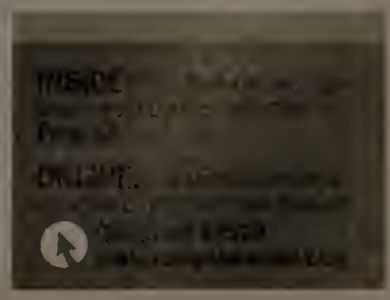


NEWSPAPER

The dawn of a new PC era.

For the last decade, every processor chip in every personal computer in the world has been based on 32-bit architecture. It was the best technology we had. Until today. Introducing the revolutionary PowerPC G5 processor, the world's first 64-bit processor for personal computers.

The world's most advanced personal computer chips are manufactured in the world's most advanced semiconductor factory.

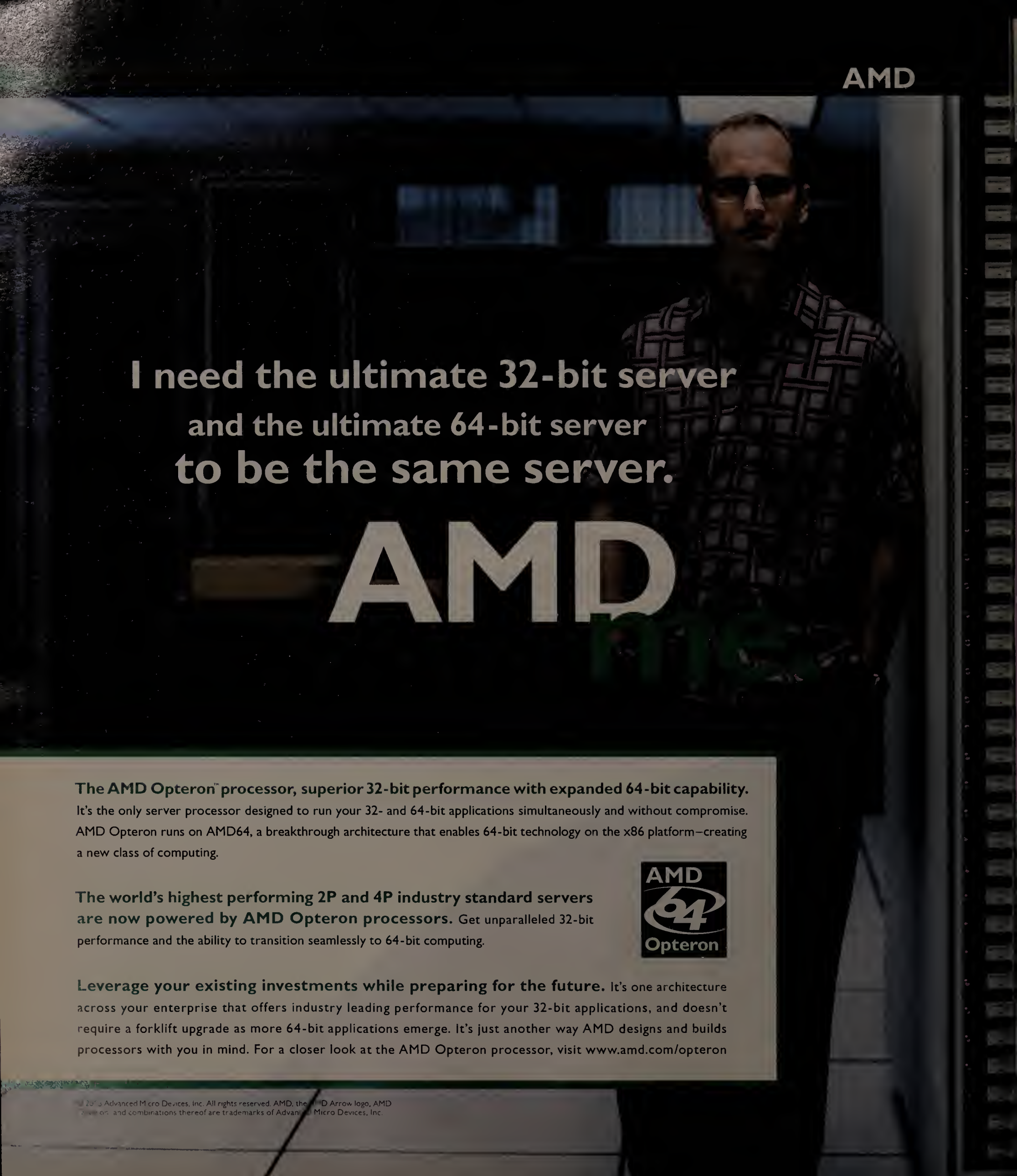
Before now, a chip this formidable could only be found in the world's fastest servers and supercomputers. Which is precisely where the G5 chip came from. Developed by IBM and Apple; the G5's DNA is from the core of IBM's highest-performance, 64-bit POWER4 processor. But just as impressive as the G5's pedigree is how it's manufactured. In IBM's (and the world's) most advanced semiconductor facility, the G5's 12-inch silicon wafers are untouched by human hands as robots guide them through 500

The 64-bit processor.

processing steps, creating 58 million transistors and connecting them with over 1000' of copper wire that's less than 1/800th the width of a human hair.

The new PowerPC G5 has a 1-gigahertz frontside bus* that moves data in and out of the processor almost twice as fast as the competition, removing a key bottleneck that limits performance. And it can support more than 200 in-flight instructions at a time –71% more than the 32-bit Pentium 4. Perhaps most importantly, the G5's 64-bit architecture can address dramatically more memory – over 4 billion times more than 32-bit chips – so that systems built around the G5 can shatter the 4-gigabyte memory ceiling that limits every other PC on earth. The 64-bit PowerPC G5. It's not just a new chip. It's the next chapter in personal computing.

The world's first 64-bit desktop processor can only be found here: Inside the new Power Mac® G5, the world's most powerful personal computer.



The AMD Opteron™ processor, superior 32-bit performance with expanded 64-bit capability. It's the only server processor designed to run your 32- and 64-bit applications simultaneously and without compromise. AMD Opteron runs on AMD64, a breakthrough architecture that enables 64-bit technology on the x86 platform—creating a new class of computing.

The world's highest performing 2P and 4P industry standard servers are now powered by AMD Opteron processors. Get unparalleled 32-bit performance and the ability to transition seamlessly to 64-bit computing.

AMD 64 Opteron

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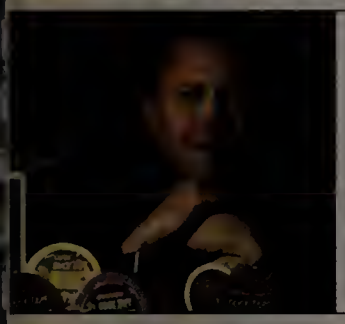
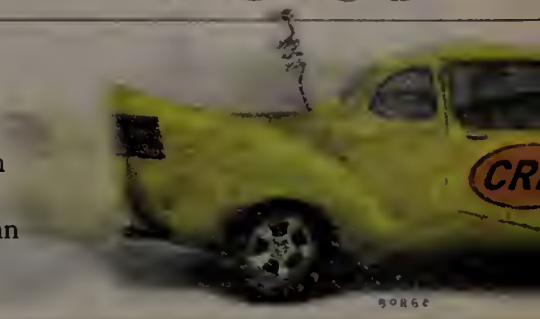


Smart Tags, High Costs
In the Management section: IT managers like Gene Obrock (left) of Henkel Consumer Adhesives are diving into RFID technology and all its costs and complexities to meet the needs of retailer partners, even though a return on investment is still a few years away. **Page 39**

CRM to Go
In the Technology section: Hosted CRM services deploy faster, but customization requirements, training and even privacy issues could shift your decision toward an in-house implementation. **Page 25**



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Demanding a Better Desktop Alternative

IT managers are increasingly turning to thin clients, other options in push to cut PC costs

BY PATRICK THIBODEAU AND CAROL SLIWA

EVERY YEAR Dave Raspallo, CIO at Textron Financial Corp., found himself having to replace a third of his 1,200 PCs. But he grew tired of the cost of the annual ritual, and he began swapping out his desktops for thin clients. Forty percent of those PCs are now gone, and many more will disappear next year.

"I would consider it a failure if we don't eliminate completely the use of any desktops," said Raspallo, who has a name for his project: STIMI, or "Stop the Intel-Microsoft Insanity."

SPECIAL REPORT

And he isn't stopping at the desktop. He's giving road warriors handhelds and tablet PCs in lieu of laptops. Total savings will be around 25% annually for his Providence, R.I.-based company, most of it in reduced support costs.

In the press for efficiency and cost reduction, data centers have been centralized and servers consolidated. And now attention is increasingly focusing on the PC. There's growing evidence of a determination among IT managers to aggressively cut PC hardware and support costs by centralizing management and minimizing Microsoft Corp. licensing fees.

Jack Klosterman, CIO at Volkswagen Credit, is as determined as any of them.

BRUCE BLACK controls costs by locking down desktops.

Three weeks ago, the Libertyville, Ill.-based financing arm of Volkswagen AG began a pilot project using PC blades and thin-client appliances from Hewlett-Packard Co., with plans to roll out 200 PC blades next quarter. One way Klosterman expects to reduce Microsoft licensing costs is by virtualizing the desktop.

Employees access applications via a solid-state desktop appliance. They can log into a PC blade from any appliance, so they're not tied to a specific desktop. With at least 10% of the employees out of the office at any given time, VW Credit can reduce the number of CPUs and, consequently, its Microsoft licensing fees. "It seems to have realistic potential for this," said Klosterman.

The fact that the appliances can last twice as long as PCs while requiring less support also yields cost savings.

Jesus Arriaga, CIO at Key Automotive Industries Inc., an auto parts distributor in Pomona, Calif., expects to cut Microsoft licensing costs by taking a server-based approach. Like Textron, Key Automotive is deploying thin clients from King of Prussia, Pa.-based Neoware Systems Inc., with application delivery software from Citrix Systems Inc.

The licensing savings come from controlled access to applications. Key Automotive has some 3,000 users, but only half of them have a regular need for Microsoft Office. "When you deploy a PC, you have to provide Office knowing that they may be sporadically using it," Arriaga said.

He will have 1,500 Office licenses on his servers and will manage user access from the data center. When his servers hit the Office license limit, he will need to buy more licenses, but until then he's paying only for what he uses. The project is 60% complete, and the goal is to move up to 95% of Key Automotive's users to thin clients over the next year.

Arriaga expects other CIOs to look at the thin-client alternative as well. "It's on the path to being widely accepted," he said.

John Stingl, chief technical officer at Russell Investment Group in Tacoma, Wash., is moving his 1,000 users to a Citrix environment to cut costs. He's using thin clients from HP's Evo line that run local versions of Windows XP along with a browser and multimedia players. Applications are delivered via a central server.

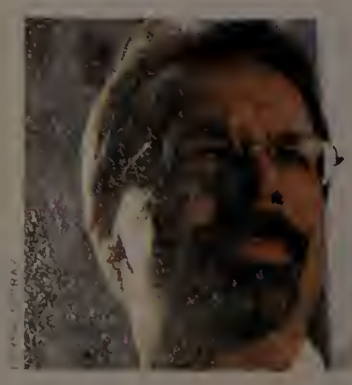
IT managers say a thin-client move works only if the application environment is standardized. In Russell Investment's case, that has meant reducing its applications from 1,100 to 350. Stingl said he expects to save $9 million over five years. "The pressure to get more for your dollar . . . is going to dictate that more folks take a look at this environment," he said.

The Linux Line

Linux-based desktops that access Web-enabled applications are getting the attention of many IT managers as well. But it may be unrealistic to predict that the Microsoft-loaded PC is facing an imminent threat from either thin clients or Linux.

"There is a long history of people talking about the thin client taking over the world," said Bob O'Donnell, an analyst at Framingham, Mass.-based IDC. O'Donnell said he inherited some "outrageous forecasts" from earlier analysts, who predicted huge advances in thin-client adoption.

In 1999, for instance, IDC forecast 9.5 million thin-client shipments in 2004, O'Donnell said. Today that estimate is 1.8 million, only about 1% of total



"I would consider it a failure if we don't eliminate completely the use of any desktops."

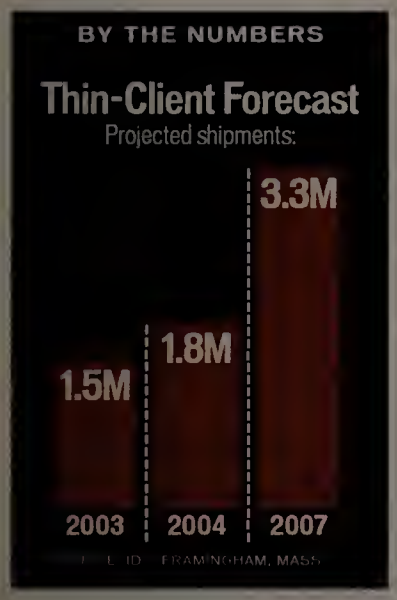
DAVE RASPALLO, CIO, TEXTRON FINANCIAL CORP.

Early Adopter Stands Firm on Linux Desktop

Burlington Coat Factory Warehouse Corp. couldn't turn to any of its retail peers for advice [illegible] years ago when it began deploying Linux-based desktops

At the time, the Burlington, N.J.-based company made one of the largest commitments to Linux to date, rolling out more than 1,000 Linux PCs. It was the largest Linux retail installation ever announced by a U.S. company. The pioneering move was an outgrowth of Burlington Coat's Unix heritage.

Looking back, CIO Mike Prince said Linux has proved to be a "good, reliable" operating system, and the move was "absolutely" worth it. [illegible]



PC shipments. Still, the thin-client growth rate is over 20% annually. "The challenge has been to raise the awareness level," O'Donnell said.

But Steven VanRoekel, a director of platform strategy at Microsoft, countered that the Windows-based desktop remains a healthy, low-cost approach. He also cited failed thin-desktop movements of the past. "We've seen this trend, and the waves rise and fall," he said.

Microsoft does offer thin-client options through Web-based applications and its Terminal Server, which is part of the Windows server operating system. The company also partners with Citrix to help companies deliver applications to remote users.

But VanRoekel said the company continues to believe that a "rich, high-fidelity client" is the best course for most users. Microsoft is working to make the client deployment process easier with the release of its next Windows operating system, code-named Longhorn, which is expected in late 2005 or 2006. A new feature, called SuperFetch, will help applications launch more quickly, and ClickOne installation will allow users to install an application by simply clicking an icon or link.

That said, users are unquestionably buying thin clients. Indeed, some vendors offering desktop PC alternatives have fared much better than other technology companies over the past couple of years.

says user resistance can be a problem.

Neoware, for instance, reported a 68% revenue gain for its fiscal year that ended June 30. And Fort Lauderdale, Fla.-based Citrix reported a revenue jump of 21% year over year for the third quarter, which ended Sept. 30. The vendors say a key driver of sales is security, as well as regulatory requirements such as Sarbanes-Oxley.

Many of the thin-client vendors, like ClearCube Inc., are privately held and don't report their revenue. But the Austin-based maker of of PC blades claims that it has about 500 corporate customers.

And those HP PC blades that are being piloted by VW Credit will become generally available in March. HP claims that the blades have the capability to replace half of all desktops in medium-size and large companies [QuickLink 43336].

The Linux desktop is a different story. In the U.S. market, vendors see more opportunities for Linux in call centers, point-of-sale systems and technical workstations than for replacing so-called knowledge worker systems used for office productivity and business functions. But that's not to say IT shops aren't examining Linux alternatives on the desktop.

The Skinny on Thin Clients

SECURITY: This has the potential of being a huge driver for thin clients. PCs are more vulnerable.

SUPPORT AND MAINTENANCE: This is a key cost-savings area. Desktop uptime should be as good as that of your data center.

ACCESS: Thin clients can provide remote access to business applications or to single applications such as reservation systems. For road warriors, ubiquitous high-speed networks may make a thin-client laptop practical - someday.

LONGEVITY: Solid-state desktop appliances can last about 10 years. Hybrid models running Windows XP, media players and not much else may outlast a thick-client PC.

STANDARDIZATION: The thin-client model works best for companies that have standardized applications.

LIMITATION: If all applications were Web-enabled, it might be a simpler world. That world isn't here yet.

In particular, many IT managers say they're keeping a close watch on Sun Microsystems Inc.'s StarOffice productivity suite. The Mayo Clinic, for instance, has 10 machines loaded with StarOffice and OpenOffice, a free open-source office suite, as part of a study of Linux and thin clients. Ken Bobis, chief technical officer at the clinic's Scottsdale, Ariz., location, said he knows those office products work. "Clearly, we may have pockets where we want to deploy them," he said.

The Mayo Clinic, which already uses Citrix for some of its 4,200 desktop clients, is investigating replacing more stand-alone desktops with thin clients as a way to cut licensing and support costs. It plans to continue using Office as well, but if the clinic de-

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substantially increased its ... deployment since the operat... first crept into its devel... in 1998, when college ... insisted on using it.

A year later, Burlington Coat Fac... began rolling out a half-dozen ... desktops to each of its ... managers and inventory ... to date and last year the com... completed its migration of an ... of 15 cash registers in each ... 350 stores to Linux. So ... Coat Factory is now de... about 7,000 Linux-based ..., according to Prince.

Prince said the move has been ... because of the thin-client approach that the company has taken to deliver key business applications over its frame-relay network. Users access the applications through Web browsers, so when changes are made to the software, they don't have to be installed on thousands of desktops, he noted.

The reduction in licensing costs wasn't a major issue for Prince. He said the company's total cost of ownership declined because the systems were easy to administer and to lock down so users couldn't install applications on their own. He said that keeping the store systems running requires only one or two workers in his network group.

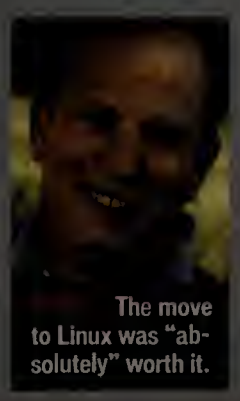
Supporting Roles

"We have more people supporting a handful of Windows users than roughly 7,000 Linux systems," Prince said. He added that the Linux systems "just sit there and don't break. They run and run and run. People can't mess them up. They don't get messed up on their own. Unless there's a hardware problem, we almost never have to do anything with them."

Prince said that if the company needs support for its Linux desktops or servers, he has found plenty of options through partners such as IBM, its Linux vendors (Red Hat Inc., and SUSE Linux AG, which Novell Inc. recently announced plans to acquire) and third-party support providers.

"We've had far fewer issues getting resolution with Linux than we've had with any other operating system we've ever used, including all of the Unixes," Prince said.

But Linux has yet to gain traction with the knowledge workers at Burlington Coat Factory's home office. Prince said many of them have relied on Windows desktops for years, and initially there were "real compromises and issues of compatibility with documents passed from Windows to StarOffice."


The move to Linux was "absolutely" worth it.

Prince, who uses StarOffice, said compatibility issues haven't been a problem for at least a year. But he sees no immediate business gain in forcing the company's knowledge workers to make a switch to StarOffice on Linux. He said he's convinced that it would save costs and streamline support, but he would also "have people up in arms."

"Resistance is natural. People don't like change in their tools. Carpenters are used to their hammers," Prince said. "You're not just going to go in and change these things unless you have something terrific to offer. For everything they give up, you have to offer some new thing that's appealing to them."

Prince said the main limitation of the Linux desktop is the lack of consistency in the user interfaces produced by the various vendors and open-source camps. "It keeps it from catching on," he said.

The CIO said he expects his company will always have some Windows desktops, but he plans to offer a non-Windows environment to his associates and possibly switch some workers as they get new PCs.

"To me, if the company were to completely change over to Linux, I think we would have an easier time in IT supporting everyone. There would be fewer viruses. There would be fewer things people would do to screw themselves up with their computers," Prince said. "On the other hand, as an IT manager, that's not a very big priority for me. I have enough major strategic issues to deal with. Changing desktops isn't one of them."

– *Carol Sliwa*

PCs, Portals and PDAs

Q&A

Among the IT managers plotting their companies' future desktop plans is **Terry Phipps**, CIO at Treviso, Italy-based clothier Benetton Group SpA. His company is two years into a four-year project to modernize its IT systems. He recently discussed the initiative with reporter Patrick Thibodeau.

Does your infrastructure upgrade extend to the desktop? What we are trying to do is go to an environment where we have much less on the desktop. We would like to have a much lighter desktop environment, where we have a browser enterprise information portal, any specific tools that are required to do specialized jobs, and an SAP client.

We are also extremely interested in alternatives to Microsoft Office. I'm positive that Microsoft Office has become so incredibly bloated in terms of arcane features that for the average user, it's really no longer so very easy to use. I don't think people are interested in software; I think people are interested in the jobs they have do to.

What do you think about thin clients? We're interested in thin clients, that's for sure. What interests me more than thin clients is a sort of hub strategy. What the thin client doesn't necessarily suggest to me is the relationship between a high degree of user mobility and the network. I think cheap and powerful PCs or Macintoshes that are well integrated and well synchronized with network services and with mobile devices, like more powerful PDA/telephones, are very interesting for us.

Can a PDA/telephone provide functionality that's similar to that of a laptop? Things are clearly going in that direction. People don't like to carry around heavy things.

> **"Microsoft Office has become so incredibly bloated . . . that for the average user, it's really no longer so very easy to use.**

Continued from page 7

ploys Office only on desktops where it's really needed, it could reduce the number of Office licenses by a third, said CIO John Cranmer.

Although Sun says StarOffice is compatible with Microsoft file formats, some IT managers remain concerned.

"People who have struggled through the maturing of the Microsoft products, I think, are reluctant to go back to being in the minority again," said Dennis Biederman, vice president of global IT services at APW Ltd., an electronics parts maker in Waukesha, Wis.

And while there's plenty of interest in Office alternatives, it's not enough to prompt a switch for Cornell University's S.C. Johnson Graduate School of Management.

"As a business school, we can't consider products that the companies who hire our students don't use," said Larry Fresinski, the school's CIO. "We suspect that Office will be the mainstay for Fortune 500 companies for some time to come. However, if there's a shift, we would shift as well."

Some IT managers clearly prefer to control costs through improved desktop management rather than by moving to thin clients.

Bruce Blitch, CIO at Tessenderlo, Kerley Inc., a Phoenix-based chemicals maker, is concerned about the performance of server-based computing with remote locations. Controlling desktop support costs is accomplished through "tyrannical control" of desktop systems through the use of Windows 2000 lockdown policies that prevent users from installing applications on their PCs, he said.

One problem facing thin-client adoption is user resistance. Jeff Skeen, CIO at Gold's Gym International Inc. in Falls Church, Va., said 30 of the company's 37 corporate-owned locations now run thin clients, and the remaining seven will be converted in March. He said over 650 franchisees will be offered the system in its current format in July.

"The big challenge we have with the corporate staff is that employees are used to having their own way with their systems," Skeen said. "What we've tried to do is keep a real close eye on the administrative staff and how they're using their PCs, so when we put the thin client in, it's not a huge loss of freedom." **43511**

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Overseas Users Pioneer Desktop Linux

Sun Microsystems Inc. today is expected to announce the sale of 10,000 seats of its StarOffice productivity suite to United India Insurance Co. in Chennai. It's Sun's largest StarOffice contract to date.

Sun sees its desktop strategy, which includes its SunRay thin client, as a means to a very specific end: more server sales. But the company expects most of its initial desktop business to come from overseas.

"[Cost] sensitivity dictates that the majority of market opportunities will be in geographies outside of North America," said Jonathan Schwartz, executive vice president of software at Sun.

Last month, Sun reached an agreement to sell up to 1 million seats of its Linux-based Java Desktop System annually to the China Standard Software Co., a government-backed consortium [QuickLink 42944]. And just last week, the U.K. government signed a five-year agreement with Sun to evaluate the cost and usability of the Java Desktop System and Sun's Java Enterprise System [QuickLink 43385]. It is also testing open-source software from IBM.

Scott Handy, vice president in charge of desktops at IBM, said U.S. businesses' interest in Linux desktops is limited. That's partly because software licensing fees represent only 20% of the total cost of ownership of desktops, he said, which IBM estimates to be between $5,000 and $7,000 per PC per year.

But Handy predicted a gradual movement to Web-based applications deployed through portals. "We are multiple years into a decade-long shift" to using Internet-based technology as a more cost-effective way to deploy an application, he said, adding that a shift to server-based delivery of applications can cut the cost of a desktop in half.

Sun expects the shift to be toward simplicity. Schwartz cited devices such as Java-enabled phones as an example and maintained that CIOs want the same kind of simplicity on their desktops. "They want to reduce expenses; they want to manage it centrally," he said.

Sun has clearly emerged as a Linux desktop leader in a relatively short time. But next month Novell Inc. is expected to finalize its purchase of Linux vendor SUSE Linux AG, a move that follows Novell's August acquisition of Ximian Inc., which makes a Linux desktop environment [QuickLink 42689].

Charlie Ungashick, director of product management and marketing for Novell's Ximian Services group, said the company will focus on technical workstation users and inventory and point-of-sale workers – not the general office worker.

– Patrick Thibodeau

Outsourcing Support an Option, Too

SOME USERS SAY the best way to reduce costs may be to outsource their desktop support to near-shore or offshore providers.

Last spring, Curtis Helsel, vice president of data and technology management at the University of Colorado Foundation, was facing a 30% budget cutback for his Boulder-based organization.

The foundation laid off 55 people, including 12 help desk and network administrators in Helsel's IT department. It was part of a plan to outsource much of the organization's IT infrastructure to San Jose-based CenterBeam Inc.

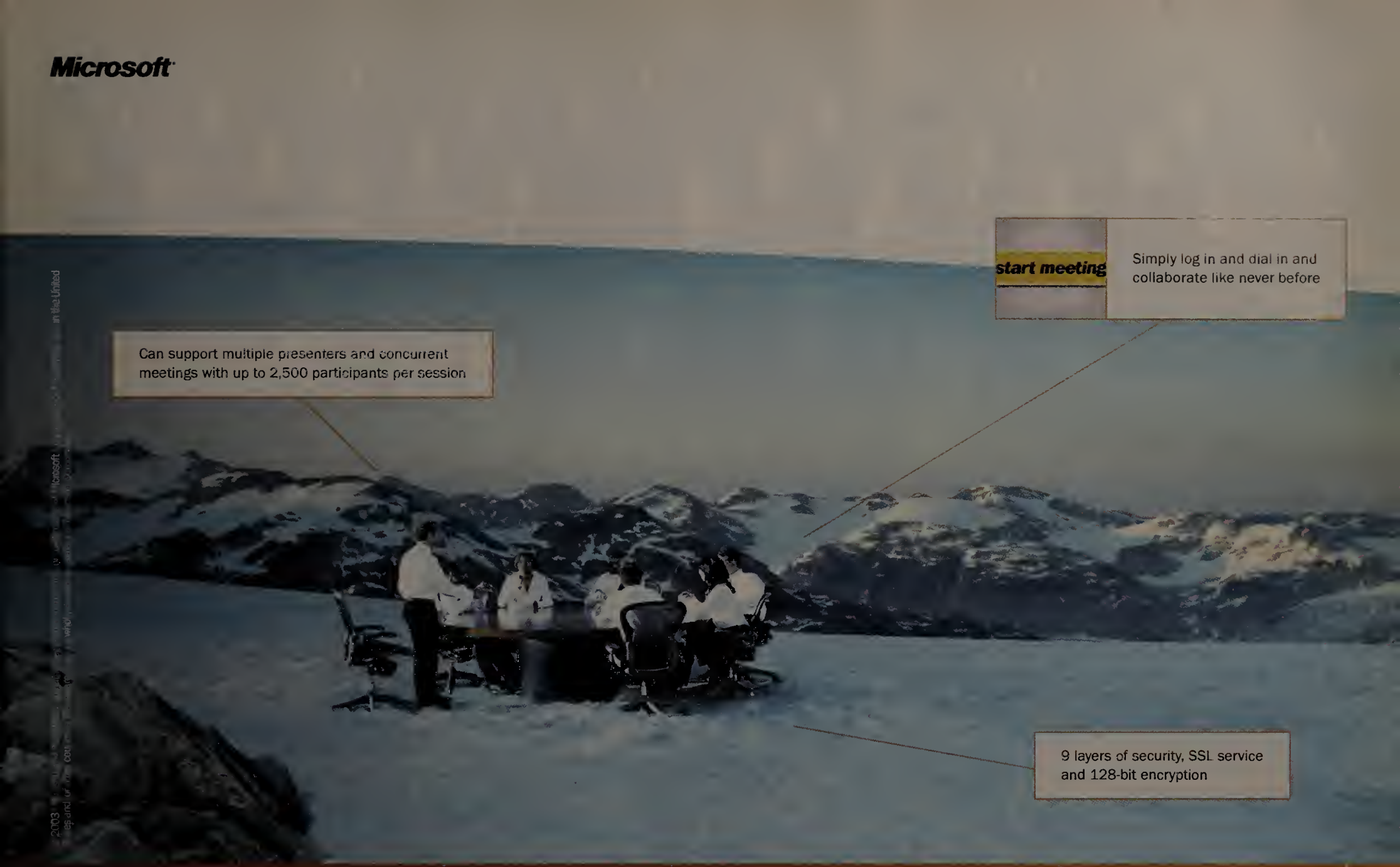
CenterBeam uses a near-shore facility in Saint John, New Brunswick, to manage PCs, servers, firewalls and backups and to handle patch management. Local Boulder contractors hired through CenterBeam take care of physical hardware problems, but for everything else, users turn to the help desk for support.

Helsel estimates savings to the foundation of about 35% to 40%, most of it in salary costs.

Returning to in-house support "would be extremely expensive for us," he said. "There is a real sense that we are locked into this for the long term."

– Patrick Thibodeau

Microsoft



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AT DEADLINE

Board Raps CSC, IRS Over IT Delays

The U.S. Internal Revenue Service's oversight board said Computer Sciences Corp. should be replaced as lead contractor on a $1.35 billion IT modernization project at the agency if delays and cost overruns aren't resolved soon. But the board also faulted the IRS for poor governance of the project. A spokesman for El Segundo, Calif.-based CSC said the vendor team it leads "is making considerable progress."

Los Alamos Can't Locate Data Disks

The Los Alamos National Laboratory said it can't account for a high-capacity storage disk and nine floppy disks following an inventory of classified materials that was done on Dec. 4. Officials at the New Mexico-based lab said the disks wouldn't jeopardize national security and likely were destroyed as part of its routine procedures. But the lab is retraining workers to ensure that they document the destruction of disks.

Peregrine Delays Its Financial Filings

Software vendor Peregrine Systems Inc., which emerged from bankruptcy protection in August, has delayed the scheduled filing of financial reports for its last fiscal year and the first half of its current one. The San Diego-based company said it's taking longer than expected to account for restructuring moves made during fiscal 2003.

Short Takes

The U.K.'s Inland Revenue agency chose CAP GEMINI ERNST & YOUNG over incumbents Electronic Data Systems Corp. and Accenture Ltd. for a 10-year outsourcing deal worth $5.2 billion. . . . JOHN SIDGMORE, former chairman and CEO of WorldCom Inc., died at the age of 52.

MARK HALL ▪ ON THE MARK

Major Rev Under Way For Open-Source . . .

. . . Web site content management application, says the lead developer, David Wheeler, who also happens to be president of Kineticode Inc., a San Francisco start-up. Bricolage, as the open-source app is called, "is going through a major rewrite and being rearchitected," he says. The reason? **Increased modularity and to give a jolt to performance.** There will also be improved integration with XML and a centralized database, which is now the open-source Postgres. But support will be added for MySQL, which is also open-source. You might think only small-time users bother with Bricolage, especially since Wheeler's customers routinely ask for and then fund the development and changes that everyone else then benefits from. Where's the competitive advantage? Well, he claims, effective management of Web site content shouldn't be considered a core competency for IT pros, so they shouldn't care. The most important competitive advantage, Wheeler says, "is **not paying six-figure licensing fees to Vignette.**" That notion has appealed to RAND Corp., Entertainment Tonight and Portugal Telecom SGPS SA. Even the Dean for America presidential campaign voted for Bricolage. But Wheeler is unsure exactly when Version 2.0 will finally hit the streets. That's probably because he's putting the finishing touches on the 1.8 upgrade to be released by the end of this month. It will include the ability to centrally manage multiple sites while maintaining individual workflows and document types for each site. And you thought *you* were busy. ▪ If you've been paying attention to **trends in antispam, antivirus and content-filtering** technologies, you've probably noticed that discrete products are increasingly being delivered as packages that allow corporate policies to be applied from a single management console. Matt Dirks, NetIQ Corp.'s vice president for management security products, notes that point products for secure messaging are becoming less interesting to IT managers. In the coming year, you can expect to see some changes in that regard for the San Jose-based company's VigilEnt, MailMarshall and other products. Although Dirks declined to say when or how the changes will occur, he did say a rebranding effort will commence in 2004. Expect to see **MailMarshall and others to be thrown in the slammer** and replaced by the more vanilla "NetIQ antispam" and the like. ▪ Eric Hahn, chairman of Proofpoint Inc. in Cupertino, Calif., believes NetIQ has some catching up to do, since his company's Proofpoint Protection Server already is a uniformly named antispam, antivirus and content filtering rolled into a single policy-based application. But Hahn is less interested in **bashing the competition than in knocking recent antispam efforts by politicians and Microsoft.** He labels new federal antispam legislation "a recipe for disaster" because it encourages the spammee to ask the spammer to remove him from a list. (Yeah, right.) And he's suspicious of Microsoft's recent announcements about adding what he calls "very good" antispam features to Outlook and Exchange. "They're using an antispam message just to sell more software," he concludes. ▪ Tom Detmer, CEO of CenterStone Technologies Inc. in Denver, says his company is getting a lovely **holiday gift from venture capitalists that will approach $3 million.** And what will the retail supply chain application service provider do with the dough? One key development will be integration of its Buyer's Page online application with leading point-of-sale (POS) programs, starting in February with Retail Pro POS from Retail Technologies International Inc. in Folsom, Calif. Detmer claims Retail Pro has 30% of the POS market share in the 10,000 or more sporting-goods stores in the U.S. Users of Fountain Valley, Calif.-based Cam Commerce Solutions Inc.'s POS tools will be next in line. And later in 2004, Detmer says, a **few of the VCs' bucks will be exchanged for euros** when CenterStone localizes its software for the booming European market. **43492**

Offshore App

Kana Inc. in Menlo Park, Calif., today ships Kana Response 8, which joins the J2EE-based Kana iCare suite for CRM users. The third tool developed by offshore programmers, Response 8 uses intelligent agents to automatically respond to customer queries and has specific features for vertical markets such as health care and telecommunications.

Government Gets Low Cybersecurity Grades

BY DAN VERTON
WASHINGTON

Congress last week slapped federal agencies with an overall dismally low grade in cybersecurity. But some government and industry executives are calling this year's report card a success and a potential turning point in security preparedness.

Despite the government's overall grade of D+ — and the F given to the Department of Homeland Security — by the House Government Affairs subcommittee on technology policy [QuickLink 43439], government and industry officials praised work being done by at least two agencies and said regulatory changes could lead to improvements in 2004.

The biggest news in the report card, said Alan Paller, director of the SANS Institute in Bethesda, Md., was the D+ given to the U.S. Department of Transportation. Compared with last year, the DOT improved its numeric score and its overall letter grade dramatically — from 28 to 69 and from an F to a D+ — because it developed a method for conducting systems certification and accreditation (C&A) in a cost-effective and efficient manner. The DOT got the idea from the U.S. Nuclear Regulatory Commission, which earned a grade of A this year.

"While other agencies spend $25,000 to $100,000 per system for doing C&A on low-risk systems, Transportation got the cost down below $5,500," said Paller.

Another major development likely to be reflected in next year's report card arises from regulatory changes introduced last December by the Federal Information Security Management Act. The key change was a requirement that each government agency develop its own systems configuration guidelines with specific security settings and patch management processes.

Paller said the FISMA requirement will likely push more agencies to demand more secure software from the vendor community. **43526**

MORE ONLINE

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QuickLink 43487
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IBM, Rational Reach Common Ground at the One-Year Mark

Integration efforts move forward as company builds on Eclipse framework

BY CAROL SLIWA
LEXINGTON, MASS.

INTEGRATION efforts remained a work in progress as IBM marked the one-year anniversary of its acquisition of Rational Software Corp. here last week. But the company showed signs that it's making headway.

Its newly consolidated developerWorks Web site, launched last week, will give the Rational pages the same look and feel as those displaying content for IBM's other software product lines.

IBM also plans to expand its developer outreach programs next year by increasing the number of technical events it stages from 120 last year to 400 next year, said Buell Duncan, general manager of developer relations at IBM.

Duncan also said Rational's user conference will be folded into IBM's developerWorks Live conference next year "because Rational is the lead inside of IBM for the efforts as we drive this IBM software development platform."

Executives outlined how the company will continue its long-term effort to move to a common architecture across all of IBM's software products, including the Rational development tools. To that end, IBM is using its Eclipse open-source development framework to give developers a common interface for its tools.

"We were a business partner with IBM for many years before joining IBM, so we had already made considerable progress integrating our products," said Mike Devlin, the former CEO of Rational and now general manager of IBM's Rational software business unit. "But now we're really accelerating that."

The merger is working out well for customers such as John Pritchard, a software architect at Lockheed Martin Corp.'s Integrated Systems and Solutions unit in Colorado Springs. Lockheed is an IBM hardware customer, and Pritchard's group uses IBM's WebSphere application server and integrated development environment, as well as Rational modeling and testing tools.

Pritchard said that in the past, the group had to go through the integration process to get the code generated by Rational's Rose modeling tool imported into the WebSphere Studio Application Developer.

"Now they're doing that, and it allows us to focus on developing a system," he said, adding that the next step will be to move to the newer Rational XDE modeling tool, which is more tightly integrated with WebSphere Studio.

One Window

Now that Rational's Purify testing tools are integrated into WebSphere Studio, developers no longer have to export files from Studio to Purify and close down one tool to work in the other, Pritchard added. Instead, they can work with a single window open.

"I think these are things we would probably have seen anyway, but they just come out faster now," he said. "You'll see an IBM update of a product, and they've got a bunch of Rational integrations with that."

Pritchard said he also would like developers, testers and product managers who use different IBM and Rational tools to be able to look at a common interface when they work. He said that Eclipse is geared toward developers and has added modeling.

Eric Schurr, vice president of marketing in the Rational division, said the company not only will continue to work on integrating products that currently can't share a common user interface, but it will also tighten integration among products that have already been integrated through the Eclipse framework.

Schurr said WebSphere Studio Application Developer features a Unified Modeling Language visualizer that was jointly built by the WebSphere and Rational teams. But he said Rational's XDE modeling tool will be more tightly integrated in the future.

The same is true of IBM's Tivoli performance monitoring tool, Schurr added. So far, the Rational Robot automated testing playback technology has been integrated, he noted.

The Rational Unified Process (RUP), a set of best practices for developing software, was updated to be more componentized and customizable. Schurr said that in the future, RUP will add content from the Summit methodology that was obtained through IBM's acquisition of PwC Consulting last year.

But Mark Driver, a Gartner Inc. analyst, said that although some of his clients are seeing value from the broader range of developer products that IBM now offers thanks to the Rational acquisition, other users are concerned about the Rational division's support for non-IBM products like Microsoft Corp.'s .Net technologies.

Driver said he thinks some users may stop using Rational tools as Microsoft starts to offer tools that are more competitive with Rational's development life-cycle products.

Rational executives insisted that they will continue to support the .Net development environment. And Devlin said he anticipates that Rational tools eventually will let developers build service-oriented architectures with a common set of modeling and testing tools, even if some services are .Net-based and others are J2EE-based. **43519**

IBM's Rational Division: YEAR 1

IBM announced on Dec. 6, 2002, that it would acquire Rational Software. Here are some of the highlights of Rational's first year in the IBM fold:

FEBRUARY: IBM completes **$2.1 billion acquisition of Rational.**

MAY: Released two new products – **IBM Rational Rapid Developer tool** and **IBM XDE Tester;** updated IBM Rational Suite, XDE Developer Plus; added customization and configuration features to IBM Rational Unified Process.

OCTOBER: Previewed tool set code-named **Stinger,** which will allow developers to write Windows applications for DB2 and integrate XDE Developer data modeling tools.

DECEMBER: Embedded IBM Rational Robot into IBM Tivoli monitoring software to capture end-user view of transactions by simulating behaviors.

SOURCE: IBM

IBM to Release WebSphere Updates

IBM this week plans to release an update to its WebSphere application server that adds support for some of the latest Java technologies and for a proposed standard to ease the building of user interfaces for Web applications.

WebSphere Application Server 5.1 will include support for Java 2 Standard Edition 1.4.1 – also known as Java Development Kit (JDK) 1.4 – and improvements in the areas of security, XML and debugging, said Bob Sutor, IBM's director of WebSphere integration software.

Sutor said the new version will also add beta support for JavaServer Faces, a proposed standard being developed through the Java Community Process, an organization that Sun Microsystems Inc. established to evolve Java technology. Using the programming model that JavaServer Faces defines, developers can assemble reusable interface components in a Web page and connect them to data sources.

"It makes it much, much easier to deploy very rich applications yet still have them server-based," said Sutor. He added that the JavaServer Faces standard is expected to be finalized next quarter and that he doesn't anticipate substantial changes.

On Dec. 30, IBM plans to release an update to the accompanying WebSphere Studio Application Developer tool set to support JDK 1.4 and JavaServer Faces. Sutor said the 5.1.1 release will give developers a pallet of controls that they can drag and drop, and the means to make easy connections to databases.

In the new application server and tool releases, IBM will also provide early support for Service Data Objects, a specification that describes a simple, unified programming model for data access to heterogeneous systems. IBM and rival BEA Systems Inc. submitted the proposal to the Java Community Process earlier this month. The result of a vote to determine whether the specification has been accepted is due tomorrow.

Sutor last week disclosed the road map for the next major release of WebSphere. He said IBM expects to start delivering Version 6.0 in the second half of next year. That release will feature support for J2EE 1.4 and performance and usability improvements, Sutor said.

– *Carol Sliwa*

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BRIEFS

IBM Wins Two Big IT Deals in Europe

IBM announced outsourcing contracts with two companies based in Europe. It will manage the IT infrastructure of tire maker Michelin in Europe and North America under an eight-year deal worth $1.2 billion. About 600 Michelin workers are due to transfer to IBM. The other deal calls for IBM to manage about 65,000 desktop and laptop PCs for insurer Zurich Financial Services. Zurich will transfer 470 employees to IBM and pay a usage-based monthly fee.

Microsoft Belatedly Delivers Patch . . .

A glitch in Microsoft Corp.'s Windows Update service caused a security fix that was supposed to have been sent to users last month to be delivered on Dec. 9 – the same day Microsoft said it wouldn't release a monthly set of patches during December. The patch is for FrontPage Server Extensions, a group of Web site management tools. [Go online for more details: QuickLink 43475].

. . . And Says It Will Drop Some Products

In other news, Microsoft said it will stop selling Office 2000, SQL Server 7, most versions of Windows 98 and various other products on Dec. 23. The sales cutoff is part of the deal that the company signed with Sun Microsystems Inc. in 2001 to settle a legal dispute over Java. Microsoft had said it would retire the products today but extended the deadline to allow more time for final downloads.

Short Takes

THE SCO GROUP INC. said its Web site as well as its e-mail and customer support systems were disrupted by a denial-of-service attack that began last Wednesday. . . . AT&T CORP. said it will begin offering a full set of voice-over-IP services to corporate users next year.

Some IT Execs Are Excluded From Sarbanes-Oxley Planning

Survey finds some firms aren't putting tech managers on steering committees

BY THOMAS HOFFMAN

EXECUTIVES AT some companies that are addressing the requirements of the Sarbanes-Oxley Act say they were quick to involve IT managers in their compliance efforts. But that's not happening universally, according to a report being released tomorrow.

Many companies are leaving IT executives off of their Sarbanes-Oxley compliance steering committees, The Hackett Group found. For example, six of 18 businesses that have set up such committees said in an October survey conducted by the Atlanta-based consulting firm that there are no IT representatives on their panels.

Hackett surveyed 22 companies, four of which said they had yet to form compliance committees to oversee projects related to Section 404 of Sarbanes-Oxley. That section requires publicly held companies to conduct annual evaluations of their financial reporting controls and procedures.

Allan Frank, president of Answerthink Inc., Hackett's parent company, acknowledged that the survey's sample size was small. But he said the results map with anecdotal evidence that the firm is seeing among its clients.

Some companies "perceive [Sarbanes-Oxley] as a finance issue, or they might not be far enough along for the light bulb to go off," Frank said, referring to the recognition that it's vital to include IT managers in the planning stages of projects.

Inclusive Policies

The E.W. Scripps Co. came to that conclusion quickly, said Oscar de Jongh, managing director of the project management office at the Cincinnati-based media conglomerate.

Scripps recently hired a new chief financial officer and promoted the controller of its IT department to corporate controller. Those two executives "have brought in a lot of participation from the IT group" on the company's Sarbanes-Oxley project, de Jongh said. He added that Scripps' compliance steering committee includes the company's chief technology officer in addition to the CFO, chief operating officer and business unit leaders.

Mark Nagelvoort, vice president and internal control manager at Hudson United Bank in Mahwah, N.J., said he has included an executive who's in charge of IT and operations such as cash management and branch administration in all facets of the bank's Sarbanes-Oxley compliance planning.

The executive's dual role makes him "the most knowledgeable senior officer in terms of Sarbanes" at the bank, a subsidiary of Hudson United Bancorp, Nagelvoort said.

But Bill Gaylord, vice president of market development at Hyperion Solutions Inc. in Sunnyvale, Calif., agreed with Hackett's finding that IT representation on Sarbanes-Oxley committees isn't a sure thing. "It's fairly mixed," Gaylord said. He added that the first step in compliance efforts should be to assess the new internal procedures that are needed and then determine what kind of system changes will be required. **43530**

Compliance Projects

Which departments are represented on your Section 404 steering committee?

Base: Finance executives at 18 large companies who were surveyed in October; four others said they hadn't yet set up steering committees.

SOURCE: THE HACKETT GROUP, ATLANTA

HP Reorg Unites Products, Services

CEO says goal is to realign sales efforts

BY STACY COWLEY AND PATRICK THIBODEAU

Hewlett-Packard Co. last week announced a corporate restructuring, merging its enterprise hardware and software unit with its services group to form one division called the Technology Solutions Group.

The move is intended to unify HP's sales teams in their approach to large corporate accounts, CEO Carly Fiorina said during an HP meeting with financial analysts in New York. The changes began in June and will be finalized in mid-2004, she said. HP plans to continue breaking hardware, software and services revenue out separately in its financial reports.

"We don't expect undue disruption. This has been part of the path we've been on for some time," Fiorina said.

FIORINA: "We don't expect undue disruption" to follow the restructuring.

Ronald Evans, head of the 94,000-member Interex HP user group in Sunnyvale, Calif., said combining the services and product groups should improve customer support.

"It can't but help in providing better communications with the customers," Evans said. "You are putting all the systems, software and services at their disposal through one operation."

In a memo to HP employees last week, Fiorina detailed the management changes, which include putting Ann Livermore, who heads the services division, in charge of the new business group. Peter Blackmore, who headed the enterprise systems division, will manage sales. In her memo, Fiorina said the change is a "more holistic grouping that allows us to simplify our management structure."

Evans praised Livermore as having a "very good level of experience in making organizations pull together."

Analysts said the restructuring may make HP staff more likely to recommend HP products over those of third parties. It "will certainly have a strong tendency to make the services more HP product-centric," said Gordon Haff, an analyst at Illuminata Inc.

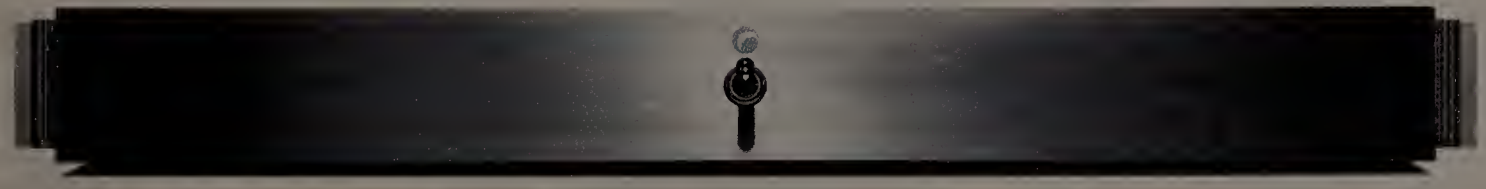
HP made the announcement a day after saying it would merge its global operations and IT divisions. Longtime HP employee Gilles Bouchard will run that group and assume the title of CIO [QuickLink 43397].

Fiorina cast that IT consolidation as a sign of the company practicing what it preaches.

"We're combining our global operations and our IT functions because we know that driving process improvements and IT together is the way to continue to make the most rapid progress," she said. **43524**

Cowley writes for the IDG News Service.

Chaos.



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Offshore

Stuart Anderson, executive director of the recently formed National Foundation for American Policy in Arlington, Va. Anderson, a former Senate staffer on the Immigration Subcommittee, called the growing number of bills related to offshore outsourcing "creeping protectionism."

But many IT workers who have lost their jobs as a result of offshore outsourcing, such as William Stolting, a former director of technology for a major financial services firm in New York, stress that lawmakers need to take action to help people in their position.

One step legislators can take is to ensure that government contract work remains in the U.S., even if it costs taxpayers "an extra dollar," Stolting said. "I think people understand there is cost involved with being a citizen and protecting what we have here."

In a Capitol Hill forum on offshore outsourcing Thursday, Rolf Lundberg, a senior vice president at the U.S. Chamber of Commerce, said legislation that seeks to impede offshore outsourcing "will undermine efforts to open new markets overseas" and invite "some form of response and retaliation" by foreign nations.

Lundberg and representatives of other trade groups argue the U.S. job protectionism prevents companies from investing in new areas and ultimately hurts innovation and job growth.

New Activists

But those arguments won't stop the efforts of workers who have lost their jobs. IT activists such as James Pace, legislative director for the Rescue American Jobs Foundation in Mesa, Ariz., said IT professionals are beginning to get involved with groups representing blue-collar workers. "We are trying to make this as big an issue as we can," he said.

In addition to setting restrictions on call centers, some bills seek to make it mandatory for government contracts to be awarded only to U.S. citizens, and others aim to set limits on the use of visas such as the L-1, which is used by companies to transfer employees from other countries into the U.S.

Among the supporters of those efforts is Bob Baugh, executive director of the AFL-CIO Industrial Union Council. "Anything in the digital age that can be moved . . . will be moved," he said.

Erica Groshen, an assistant vice president at the Federal Reserve Bank of New York, said the U.S. is in a recovery with respect to output, "but we're not in a recovery in terms of jobs."

Still, Groshen said she doesn't consider the movement of jobs overseas to be negative for the U.S. economy, because the country's competitive advantage is its ability to innovate. "Constantly shipping jobs abroad signals our success as innovators," she said.

Robert Atkinson, senior vice president of the Progressive Policy Institute in Washington, said there are policy changes the government can make to help the IT industry. He cited examples such as investing in IT projects, boosting training and giving affected workers the tools they need to adjust to the new environment, including assistance with medical coverage and expanded unemployment insurance.

Jeff Lande, a vice president of the Information Technology Association of America, an industry trade group in Arlington, Va., said there are limits to what can be outsourced. For instance, eight out of 10 IT workers are employed by small companies that don't have the scale or capacity to send work offshore, he said.

More than 500,000 jobs, by some estimates, have been moved to India. But Lande said improvements in the standards of living in other countries enable their consumers can buy more products.

"This is a battle that's going to be won on innovation and quality," Lande said. **43520**

New Protectionism?

Examples of legislation seeking to restrict offshore work:

CONGRESS

- **A bill sponsored by Sens. Craig Thomas (R-Wyo.) and George Voinovich (R-Ohio)** would prohibit contractors from performing work outside the U.S.
- **Sen. Christopher Dodd (D-Conn.) and Rep. Nancy Johnson (R-Conn.)** have introduced bills in their respective chambers that would restrict use of the L-1 visa.

STATE LEGISLATURES

- **Indiana:** A bill would require that government contracts be awarded only to U.S. citizens or people authorized to work in the U.S.
- **North Carolina:** Legislation would require a call center operator to disclose his location upon request.

Zero-Day

tacks could wreak.

"I'm very concerned about it," said Joseph Inhoff, LAN administrator at Lutron Electronics Co., a maker of lighting equipment in Coopersburg, Pa. Because zero-day attacks seek to exploit security holes in software products before vendors can plug them, the potential for damage is something that Lutron's management is especially worried about, Inhoff said.

Inhoff attended the InfoSec show to see how automated patching software could help his company respond to zero-day attacks once patches are released by vendors. "I'm trying to figure out what I can do about it," he said.

No major zero-day attacks have been launched so far. But IT managers probably won't have the luxury of being able to put off needed security improvements for long, warned Mary Ann Davidson, chief security officer at Oracle Corp.

Malicious hackers are getting much better and faster at exploiting software flaws, Davidson said during a panel discussion. Last summer's Blaster worm, which was one of the most virulent and widespread ever, hit the Internet barely one month after Microsoft Corp. issued a patch for the Windows flaw that the attack exploited. A variant of Blaster called Nachi struck less than a week later. By comparison, last January's SQL Slammer worm didn't appear until eight months after the discovery of the SQL Server database vulnerability it took advantage of.

"You can see that the time lines are collapsing," Davidson said. The trend suggests that it's only a matter of time before users start seeing attacks against flaws that haven't yet been disclosed, or ones for which patches haven't yet been released, she added.

The number of new vulnerabilities and exploits surfacing on IT security discussion forums and mailing lists are another indication that such attacks aren't far off, said Todd Kunkel, network system security administrator at Adelphi University in Garden City, N.Y.

Kunkel monitors discussion forums on a daily basis to try to keep abreast of new security threats and determine whether work-arounds are possible before attackers exploit the flaws. "I try to find out if there's anything that I need to worry about and see how I can go about fixing it," he said.

The relatively glacial pace at which some companies patch their systems against security holes makes them attractive targets for zero-day attacks as well as conventional ones, said Gerhard Eschelbeck, chief technology officer at Qualys Inc., a Redwood Shores, Calif.-based company that provides vulnerability assessment services.

Every three months, Qualys performs more than 1 million vulnerability scans on behalf of 1,300 clients and "several thousand" prospects, Eschelbeck said. He noted that one scan done last month identified more than 12,000 systems that were vulnerable to a Windows remote procedure call flaw for which no patches were available at the time.

The consequences of zero-day attacks are "potentially devastating" for companies that haven't developed plans for rapidly responding to them, said Dennis Brouwer, a senior vice president at Dublin, Ohio-based SmartPipes Inc., a provider of managed network services.

The only option that IT managers may have if they are caught unprepared by an attack is to shut down their systems and restart, Brouwer said. "It's almost like the response after 9/11," he noted. "The first thing you do is to get all your airplanes on the ground." **43525**

How to Mitigate Exposure to Zero-Day Attacks:

REQUIRE vendors to ship software that meets specific safe-configuration requirements.

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MAKE SURE that you have a good patching process and an incident-response plan in place.

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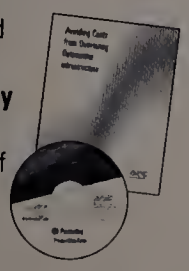

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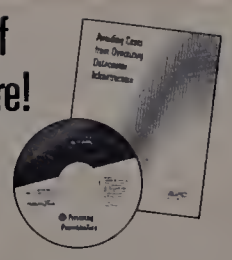

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C&W Users Relieved by Deal to Sell U.S. Unit

Turnaround firm agrees to buy Web hosting operations

BY TODD R. WEISS

Cable & Wireless PLC last week said it has found a buyer for its U.S. Web hosting operations, giving a sense of relief to some corporate users who have stuck with C&W America since the unit was put up for sale in June.

The agreement to sell C&W America to turnaround investment firm Gores Technology Group LLC "seems to bring some uncertainty to an end," said Ron Pellowe, director of systems and networks at EquipNet Direct Inc. in Braintree, Mass. "It puts a much stronger financial backer behind them."

Pellowe said EquipNet, which runs an online marketplace for surplus industrial equipment, considered switching to a new hosting provider when London-based C&W made big cutbacks in the U.S. late last year and announced its pullout plans [QuickLink 38994]. But EquipNet decided to stay the course with C&W America.

"We felt the data centers were fairly stable, even though the company was having changes," Pellowe said. He added, though, that he needs to hear promises from Gores officials that they won't close any more of C&W America's hosting facilities.

The Reston, Va.-based U.S. unit has shut down eight data centers this year, leaving 15 still operating. A C&W America spokesman said no additional closings are planned but added that nothing will be ruled out once Gores becomes the owner. In the meantime, C&W America will take other cost-cutting actions, including a network consolidation and renegotiations of contracts.

The sale to Los Angeles-based Gores is expected to be completed by February. Gores will pay up to $125 million for C&W America, depending on future business performance. By comparison, C&W paid $575 million and assumed $180 million worth of liabilities when it bought the U.S. data centers and some overseas facilities from Exodus Communications Inc. in early 2002.

BUYOUT DETAILS

C&W America

- Filed for Chapter 11 bankruptcy protection to help facilitate the deal with Gores.
- Said C&W PLC will provide up to $100 million in financing to help fund operations until the sale is completed.
- Has hired two consultants to serve as its CEO and CFO until Gores takes control.

Steve Wigginton, vice president of marketing, operations and development at Neoforma Inc. in San Jose, said he hasn't had any problems with C&W America's hosting services. "We're certainly happy to see what looks like a favorable resolution," said Wigginton, whose company develops supply chain systems and online marketplaces for hospitals and suppliers of medical products.

Rick Thimble, IT manager for the U.S. and Europe at plastic parts maker Moldflow Corp. in Wayland, Mass., said he also is happy with C&W America's performance and hopes to maintain his relationship with the hosting provider.

But Sean Armstrong, senior Internet manager at Network Intelligence Corp. in Walpole, Mass., said his company began shopping for a new hosting vendor late last year and recently signed a contract with AT&T Corp. "We were sick of the uncertainty," he said.

43474

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MARYFRAN JOHNSON

Colliding With Customers

WHEN DELL YANKED its corporate PC tech support out of India and brought it back to U.S. soil recently, the move snapped a lot of people to attention. And no wonder. Here's one of the industry's most hyperefficient, cost-conscious vendors abandoning — at least for now — a cheaper offshore alternative because of customer complaints about poor service.

MARYFRAN JOHNSON is editor in chief of *Computerworld*. You can contact her at maryfran_johnson@computerworld.com.

In our front-page story last week ["Offshore Support Questioned," QuickLink 43340], other heavyweights such as IBM, Oracle, Hewlett-Packard, Microsoft and Computer Associates hastened to say that they're not planning any Dell-style retreats from offshore tech support centers. But if the customer pain meter keeps moving in the wrong direction — and users start walking away over service issues — those offshore savings could look a lot less compelling in the long run.

So far, of course, the vendors know better than to redirect their high-end customers overseas for support. A Microsoft VP made the point in our story that no "premier support" contracts will be serviced out of the company's new shop in Bangalore.

In theory, the location of technical support people shouldn't matter as long as the service quality is kept high and language barriers are kept low. In reality, the user experience isn't so idyllic. The rapid growth of India's multibillion-dollar outsourcing industry has made skilled IT workers harder to find and keep, especially in the call centers, where attrition rates can reach 35% a year.

We heard from many readers last week with stories to tell about frustrating offshore support encounters. They complained about rigid, "by the book" technicians who wasted their time wading through fixes already tried. They ran into problems with bad phone connections, strongly accented English that was hard to understand, and just plain incompetence.

"The folks answering the support call do not know the product they are supporting, nor do they know the tools for reporting problems," said one reader. "If Dell, Microsoft, HP, etc. continue to move support jobs to India, they won't have to worry about customers, because there won't be any."

A New York-based chief technology officer, who'd had no complaints about previous Microsoft support, saw service quality change just recently when he called about an Exchange problem.

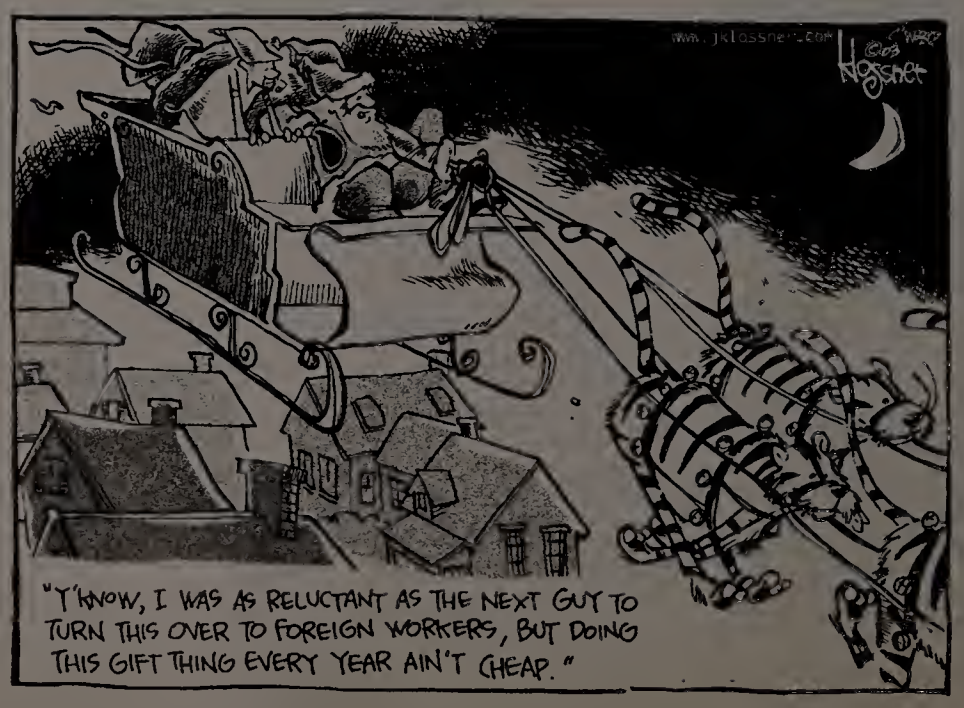
"The call got routed to a support center in India, and the technician in this case was obviously unqualified," the CTO said. "He made little attempt to understand our problem ... and within five minutes suggested we rebuild the whole machine and reinstall Exchange" -- advice wisely ignored. Ultimately, an experienced technician in Dallas solved the problem.

Another IT manager contended that the total cost of software ownership is spiraling in the wrong direction. "Now companies are sending their support overseas, costing customers more in time to resolve the problems," he noted. "All they really did is shift the expense over to their customer."

Despite the backlash, there are few signs that offshore outsourcing's growth is slowing. Irate customers are certainly going to attract more attention to the dark side of offshoring than displaced software technicians will, but we're still long on anecdotes and short on statistics about the long-term impact.

In the meantime, emerging best practices suggest that you need to ask for performance metrics about problem resolution, as well as independent surveys on customer satisfaction. Make sure your vendor's training programs are hammering on language skills as much as on technical ones.

If Dell's action is an early warning, other vendors may also end up changing course to avoid a customer collision. **43485**

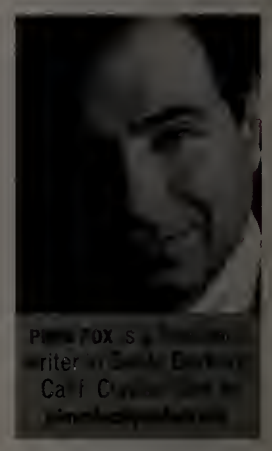


PIMM FOX

Get Me Supply Chain, Stat!

COMBINING the words *middleman* and *health care* in one sentence is a sure way to produce grimaces among the most kind and optimistic people. But here goes: With the right kind of middleman, even managed health care can be improved.

If you think I've been sitting too close to the ether, then consider the results for Jeff Solarek, director of material management at Dayton, Ohio-based Premier Health Partners Inc. Solarek oversees all the purchasing, distribution, receiving and warehousing for seven large Dayton-area health care facilities. By hooking up with San Jose-based Neoforma Inc., Premier is connected via the Web to a hosted marketplace to order and track purchases.



Pimm Fox is a freelance writer in Santa Barbara, Calif. Contact him at pimmfox@pacbell.net.

Back-order notification, which used to take 36 hours, is now processed in a mere two hours. The replenishment supply system has been automated, with fill rates now managed through a link to Premier's purchasing system, which in turn does a handshake with Marketplace@Novation — Neoforma's supplier, distributor and manufacturer network. And there's even a wireless connection for those actually walking around providing care and dispensing products.

Solarek said Premier has saved $1.3 million over the past two years by cutting transaction fees, streamlining purchasing procedures and negotiating better prices. Through the hosted application, Premier accesses 330 health care supply vendors. Impressive, sure, but the real innovation is the last mile into Premier's legacy purchasing module and ERP systems.

Corporate IT lets third-party IT operations make dedicated connections to internal applications. The benefit is that the hosted operators map to myriad electronic data interchange systems while IT maintains a single Web connection from the data

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Monday Keynote Address: From IT Expense to IT Value

Glen Salow, EVP & CIO, American Express

At the American Express Company, everything rides on the IT "manufacturing plant" forging the value chain for this diversified global provider of travel, insurance, financial and network services. During the past few years, CIO Glen Salow has crafted a new value agenda for IT within the company, turning an adversarial relationship with the business side into a partnership, leading a massive outsourcing operation and managing demand for technology services in ways that eliminated $50 million in expense. As one of the earliest of IBM's "Computing on Demand" customers in 2002, Salow transitioned more than 32,000 employees in 32 markets to IBM and crafted a similar but smaller deal with AT&T for networking services. The end result is a far more flexible IT infrastructure that responds swiftly to business change. In his keynote address, Salow will talk about recasting IT from a cost center to a value producer, and how IT leaders who concentrate on delivering value will build the best futures for their own companies.

Tuesday Keynote Address

David Bauer, First Vice President and Chief Information Security & Privacy Officer, Merrill Lynch

The Once and Future Infrastructure: An Enterprise Reality Check

Panel Moderator: Patrick Thibodeau, Senior Reporter, Computerworld

IT leaders are inundated with vendor pitches for autonomic, "on demand," and various forms of utility "pay as you go" computing, but how well do these evolving computing models match the actual needs of the enterprise? Upgrading their aging corporate infrastructures is indeed a top priority for many companies today, but the task involves a complex cascade of decisions around desktop management, server consolidation, blades and clustering, open source, wireless and even outsourcing considerations. Alternative financing and new sourcing approaches also come into play, but what are the tradeoffs? Loss of flexibility and control? Vendor lock-in? This panel of experienced senior IT managers will tackle these tough questions as they talk about their strategies, plans and problem-solving approaches to building out a "once and future" infrastructure primed for business growth.

Evaluating Infrastructure Renewal Through Scenario-Based Decision-Making

Brian Leinbach, SVP of Operations, Delta Technology, Inc. (a unit of Delta Air Lines)

IT managers have long known that the cost of development and initial deployment of IT systems is quickly matched by the cost of system maintenance. In order to communicate this to its parent company, Delta Technology developed a business risk analysis tool that addresses the infrastructure renewal of technology assets by reviewing the following characteristics: technology age, business value at risk, platform supportability, platform complexity and risk of failure. This session addresses how, by developing a standardized risk scoring process and using scenario-based decision processes, companies can evaluate proposed infrastructure investment scenarios and identify mitigation strategies.

Riding a Tidal Wave of Change: Data Management, Enterprise Integration and Web Services

Panel Moderator: Don Tennant, News Editor, Computerworld

Finding the most innovative yet cost-effective ways to manage data and integrate business and technology processes are among the most formidable challenges facing IT organizations today. But there are some compelling approaches emerging. Web services, in particular, hold the potential to enable companies to leverage software technologies (such as Sun's J2EE and Microsoft's .Net) more effectively, develop and build new applications faster, and integrate legacy and Web applications more gracefully. Yet questions about lax security and slippery standards compliance continue to plague Web services. The success (or failure) of integration projects is especially visible across a company's supply chain, in its wireless strategies and in business intelligence efforts. This panel will deliver a lively exchange of experience and advice on the key issues surrounding enterprise integration, including the skill set and cost challenges driving many companies to outsource development.

Steal This Great Idea: Audience Participation and Working Session

Moderators: Maryfran Johnson, Editor in Chief, Computerworld, and Mark Hall, Opinions Editor/Columnist, Computerworld

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Project Disasters: How to Predict Them, Prevent Them or Pull the Plug on Them

Paul Glen, President of C2 Consulting, Computerworld Management Columnist and Author of "Leading Geeks"

Despite significant progress over the last decade, project success rates are still dismally poor. Only about one-quarter of all IT projects are completed successfully. The rest are canceled completely or finished up late, over-budget and sometimes missing major functionality.

When used well, traditional IT project management approaches can provide excellent information about what happened, but they're lousy at predicting the future. In this presentation, Paul Glen will identify the five leading indicators of project success and show how to use them to predict the future, prevent problems and emerge a hero with technologists and business executives alike.

Breakfast Address: Homeland Security: Public/Private Partnerships & The Cost of Failure

Dan Verton, Senior Reporter, Computerworld, and author of "Black Ice: The Invisible Threat of Cyber Terrorism"

Cyber security is the common thread that ties together the nation's most pressing homeland security and critical infrastructure protection challenges -- challenges that could be with us for many decades as the war on terror unfolds. But does the absence to date of a second major terrorist attack on the U.S. indicate that the so-called public-private partnership between the government and the private sector is really working? Or is it quietly failing due to behind-the-scenes conflicts and political skirmishes between the public and private organizations responsible for our common defense? Computerworld's Dan Verton will kick-off a day of security, business continuity and project leadership discussions with a revealing look at what's gone right, what's gone wrong and why failure cannot be an option.

The Myth of Corporate Security: Why CIOs are Mad as Hell and not Going to Take it Anymore

Alan Paller, Executive Director of Research, SANS Institute

From his unique research and training perspective on the security industry, SANS Institute's Alan Paller will start off this session with a live demo of a hacking incident to show just why CIOs are so irate about the poor quality of protection their software and systems provide today. Who is to blame here, and what's being done about it? Why are security staffers constantly fighting a war they never seem to win? What can you do about users who ignore procedure and worsen security problems? What recourse is there against vendors who deliver unsafe systems? In this session, Paller will introduce you to several CIOs who have made dramatic, sometimes harsh moves that forced real change. He'll show what they did and how they did it and, in a couple cases, who got in the way.

No More Excuses: Responding to the Demands of Data Privacy Laws, Regulatory Compliance and Other Business Mandates on Corporate IT Security

Panel Moderator: Dan Verton, Senior Reporter, Computerworld, and author of "Black Ice: The Invisible Threat of Cyber Terrorism"

The security agenda for 2004 is long on mandates but short on money, leaving IT to battle with few resources against a slew of malicious attacks, tough new data protection laws and demands for metrics that demonstrate effectiveness of information security procedures. The long list of pressing concerns confronting Chief Security Officers and IT leaders includes regulatory compliance practices, application and network security, spam, enterprise monitoring, benchmarking against standards and disaster recovery responsiveness. How are leading organizations juggling and responding to these myriad challenges? When everything is a priority, how can you possibly prioritize? What kind of metrics are proving most effective in gaining support and understanding from the business side? This panel will hone in on what's working (and what isn't) in their own companies, sharing a wealth of practical advice and fresh insight about how to answer the security challenges facing so many IT organizations today.

"Best in Class" Project Leadership Lightning Round

A fast-paced trio of user presentations and audience Q&A, featuring the most innovative, high-impact case studies from the Premier 100 honorees

Selling Security to Your Beady-Eyed, Bean-Counting CFO

Doug Lewis, President, The Edge Consulting Group, Atlanta, and former CIO, InterContinental Hotels Group

From the "been there, done that" perspective of a longtime CIO, Doug Lewis will walk you through his methodology for building a business case for security spending with the biggest corporate roadblock of all: the Chief Financial Officer. This presentation will lay out a detailed, three-step process for determining appropriate security levels, building an affordable security plan and mapping out the ROI-based business case that senior executives will respect and support. Lewis will reveal everything from the raw ingredients of building a successful business case to the reasons why IT groups should outsource vulnerability assessments and penetration tests against key systems. He'll also explain the folly of low-balling the TCO (Total Cost of Ownership) of an expensive security overhaul, and provide specific examples (including the math) from several industry case studies.

IT Governance, Risk Management and the Future of the IT Organization

Panel Moderator: Julia King, National Correspondent, Computerworld

Many CIOs and senior IT executives are moving into expanded roles in 2004, as risk management, regulatory compliance, vendor/supplier negotiations and outsourcing management all become standard components of their leadership roles. But is IT governance ready to evolve beyond its previously narrow focus on technology spending and labor costs -- into real partnership with business objectives? How should potential IT investments be evaluated and mapped to companywide priorities? What skillset changes does the current IT organization need most? Where will future project leaders come from if outsourcing continues its aggressive growth? This panel will focus on these critical issues confronting corporate IT, and offer some experienced guidance on how to prepare for the high-risk changes ahead.

Integrating Human Capital: The Magic of Creative Adaptive Planning

Moshe Rubinstein, UCLA Distinguished Engineering Professor, and author of "The Minding Organization"

The most important thing to know about planning is that organizations do entirely too much of it, says this distinguished UCLA professor and author. Too many detailed rules constrict an organization's creativity and suck the life out of our capacity for adaptive planning. In his highly engaging, dynamic interaction with the audience, Moshe will illustrate the power of human problem-solving behavior. He will demonstrate the principles of complexity theory and the importance of living in a world that moves beyond its narrow focus on productivity and service and on to better ways thinking and behaving.

Mobilize for Innovation

Thornton May, Futurist and Computerworld Columnist

How do we judge technology leadership in today's complex and troubled business climate? Emulating old-think industrialist CEOs is a sure-fire trip to the dust heap of history. True IT leaders understand that the most unambiguous evaluation of leadership is performance – its perception and its reality. Given the powerful technologies available at close-to-commodity prices, the Suits are not out of line in asking, "What value is your IT organization creating today?" It is time to shift the IT engine of growth out of reverse and into overdrive. Tapping into his extensive research and consulting work with hundreds of CIOs, futurist Thornton May will zero in on the reasons so many IT restructurings fail and provide powerful insight from the top of the IT food chain. How are the world's best IT leaders reorganizing IT to transform business and gain control over the IT supply chain? Thornton will rattle your cage and stimulate new thinking about how companies should be mobilizing for the coming age of hyper-innovation.

Solve My Problem: A Town Hall Meeting on Risk Management and Project Leadership

Gala Evening: "Best in Class" Awards Ceremony, Dinner, Honoree Recognition and Entertainment

How to Ruin Your Life

Ben Stein, Author, Humorist, Lawyer, Economist, Actor and Educator

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Number of employees in your entire organization (ALL locations):
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- ❑ 5,000 - 9,999
- ❑ 1,000 - 4,999
- ❑ 500 - 999
- ❑ Under 500

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- ❑ VP/GM/Director
- ❑ IS/IT Director/Manager
- ❑ Other IS/IT Department Manager/Supervisor
- ❑ Other Corporate/Business Manager
- ❑ Corporate/Business Staff
- ❑ Consultant (Internal) or Other

The one item that best describes your involvement in the IT purchase process:
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- ❑ Approve the budget
- ❑ Initiate the purchase
- ❑ Evaluate/recommend products, brands, vendors
- ❑ Identify/establish the need to purchase

What is your organization's primary vendor for servers?:
- ❑ Dell
- ❑ Hewlett Packard/Compaq
- ❑ Hitachi
- ❑ IBM
- ❑ Sun
- ❑ Unisys
- ❑ Other

What is your organization's most mission critical development/Implementation project this year:
- ❑ Business Intelligence/Data Management
- ❑ Web Services
- ❑ Mobile/Wireless
- ❑ Network Infrastructure/Storage
- ❑ Security
- ❑ Linux
- ❑ Enterprise Integration

What is the estimated annual revenue of your entire organization?:
- ❑ $10 Billion+
- ❑ $1 Billion - $9.9 Billion
- ❑ $500 Million - $999 Million
- ❑ $100 Million - $499 Million
- ❑ Less than $100 Million

What is your organization's annual IT/IS budget for all IT/IS products?:
- ❑ Over $1 Billion
- ❑ $500 Million - $999 Million
- ❑ $100 Million - $499 Million
- ❑ $10 Million - $99 Million
- ❑ $1 Million - $9.9 Million
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As a result, you can keep your mainframe. Plus, you get savings by tracking what you buy, measuring what comes in and knowing how much you spend. Having up-to-date information gives you contract power, whether for syringes or bed linens. And you don't have to be a 1,000-bed facility to qualify. Neoforma has teamed up with Vista, Calif.-based dj Orthopedics Inc. to take the hosted setup to smaller sites such as doctors' offices, pain management clinics and surgery centers.

"Nobody tracked what was going on [before]," said Michael McBrayer, senior vice president at dj Orthopedics. "Now administrators are running things more as a business. And they've got to know what's coming in, what's going out." They can track everything from the Ace bandages that your doctor hands out to X-rays and office supplies. (Say, does that mean no more free samples?)

Sure, it's depressing to think of the practice of medicine in terms of ROI, but like the common cold, such thinking is here to stay. At least hosted solutions for supply management are a tangible palliative. **43330**

DAVID MOSCHELLA

An Optimist's Analysis

MORE THAN three years after the Internet bubble burst, IT forecasters are still being asked. "Will robust growth in information technology spending ever return and, if so, when?"

Count me among the optimists. There have always been four main drivers of IT industry growth: inventory levels, the overall economic environment, customer confidence and major IT innovation. Although the current situation in each of these areas is by no means ideal, all four factors are now decidedly positive. This bodes well for a pretty good 2004 and a potentially strong 2005-06. Consider the following evidence:

Inventory levels. During the dot-com bubble, many companies overinvested in IT. It's hardly surprising that it has taken a few years to burn through the resulting excess. However, in areas such as mass storage, telecom equipment, PCs and software, there's growing evidence that most of this excess capacity has been consumed and that pent-up demand is building. Keep in mind that the last major slowdown in IT spending lasted roughly five years, from 1986 to 1991.

DAVID MOSCHELLA'S latest book is *Customer-Driven IT: How Users Are Shaping Technology Industry Growth.* Contact him at dmoschella@earthlink.net.

Economic cycles. Since IT now comprises nearly half of all U.S. capital investment, spending for it can't grow without the support of a solid economy. Fortunately, the U.S. economic recovery seems to be well under way. Whatever you think about the long-term wisdom of the Bush tax cuts, the huge federal deficits and the rapidly falling dollar, these policies have provided a powerful short-term stimulus that has led to renewed business and consumer confidence. On the other hand, any major new terrorist attacks in the U.S. or any worsening of the situation in Iraq could easily put an end to this momentum.

Customer confidence in IT. Forecasters are trained to rely on empirical data, but the single most important factor has always been psychological. That is, how strongly do customers believe in the potential of IT? During downturns, everyone likes to talk about short-term payback and ROI, but for most major IT projects, such measurements can't be made with accuracy. Consequently, customer confidence and perseverance is often required. As I wrote last month, Accenture's new ad campaign featuring Tiger Woods may signal a turning point in our industry's self-confidence and leadership [QuickLink 42544].

Significant innovation. Historically, major supply-side innovations have helped drive the IT industry forward. Think PCs, LANs, the Internet and much more. But don't expect the coming recovery to be led by grid computing, blade servers or any other vendor technology. Instead, the most important innovations will be those coming from IT customers. Reasons for optimism include a revitalized online advertising business, the growing interest in RFID, the success of RosettaNet and the strong initial growth of Apple Computer's iTunes. On the other hand, many forms of potentially important demand-side innovation continue to lag, especially in health care, bill presentation and e-government.

The customer-driven innovations listed above suggest an important distinction. Many new sources of IT spending growth won't necessarily be part of the traditional IT budget. This is why many of the leading "IT spending surveys" could easily underestimate the strength of the coming recovery and why mainstream IT budgets may not feel any real sense of relief. Looking ahead, the prospects for overall IT spending and the IT department's budget will increasingly diverge. **43327**

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READERS' LETTERS

DHS, Heal Thyself

THE PAGE ONE STORY "Feds Say IT Security Lacking" [QuickLink 43338] was a very interesting article. However, the Department of Homeland Security should probably remove the stone from its own eye before lunging for the motes in the eyes of the IT industry. The Open Relay Database lookup clearly shows that the DHS's primary inbound mail server is an open relay – it will accept connections from anywhere and forward mail anywhere – making it a ripe target for sending spam or other forms of abuse, such as mail floods. Since the DHS's own server is what Tom Ridge might call "an attractive target for terrorists," perhaps more time should be spent bolstering the department's security.

David Romerstein
Springfield, Va.

A Taxing Matter

HEAVEN FORFEND that we make shopping experiences equitable by having all merchants collect taxes ["Don't Shoot the Internet," QuickLink 42893]. Yes, the current system with 7,500 tax jurisdictions is complicated, but haven't nationwide brick-and-mortar vendors been dealing with this for years? If online merchants can't compete on a fairer playing field, maybe they haven't really innovated anything beyond a way to draw people with artificially low prices.

Jack Vinson
Knowledge management advocate, Evanston, Ill.

Novell's Future

PIMM FOX'S opinion on Novell/SUSE would be understandable if this was a normal growth-type acquisition, but Novell's viability is at stake ["Novell + SUSE = Problems," QuickLink 43073]. Here's how I see it: Novell will abandon the NetWare kernel within a few years (though it may continue to support the installed base) as it remakes itself as a Linux software company. The SUSE employees can continue to work on SUSE as a separate product, not just as a base for Novell's Linux development efforts. The Novell employees in Utah will continue to work on porting and developing Novell products for Linux and Windows. And there is still plenty of work to be done to enable Linux to take over the traditional roles performed by Microsoft and NetWare server operating systems. The Ximian group will be working to integrate Linux desktops with Microsoft and Novell technologies and to evolve the Linux desktop. I can foresee development work being done to create Java client ports of certain Windows software to enable it to work cross-platform; cross-platform technologies may be Novell's other strength.

I think this purchase opens up a whole new world of opportunities for Novell. I do agree with Fox that Novell needs to be smarter than it has been in its acquisitions and product marketing. The company's very survival depends on how it handles the new opportunities that Linux affords.

Jim Anderson
Nyack, N.Y.

Workforce du Jour

REGARDING THE ARTICLE "India Hits Back on Outsourcing Job Fears" [QuickLink 43204], companies want to maximize their profits. When India's economy inevitably begins to swell and Indian workers rightfully ask for higher salaries to adjust for a higher cost of living, China (or another player) will be all too happy to provide a cheaper workforce. Then it will be the Chinese making bold statements about being better, smarter and more motivated.

As a side note: Regardless of where companies go for cheap labor, they need buyers, right? So, what happens to their client- or consumer-based markets when the median purchasers are all out of work or progressively more underpaid. In the end, aren't these companies gutting their own futures?

Willem Harlow
Software marketing manager, Los Angeles

COMPUTERWORLD welcomes comments from its readers. Letters will be edited for brevity and clarity. They should be addressed to Jamie Eckle, letters editor, Computerworld, PO Box 9171, 500 Old Connecticut Path, Framingham, Mass. 01701. Fax: (508) 879-4843. E-mail: letters@computerworld.com. Include an address and phone number for immediate verification.

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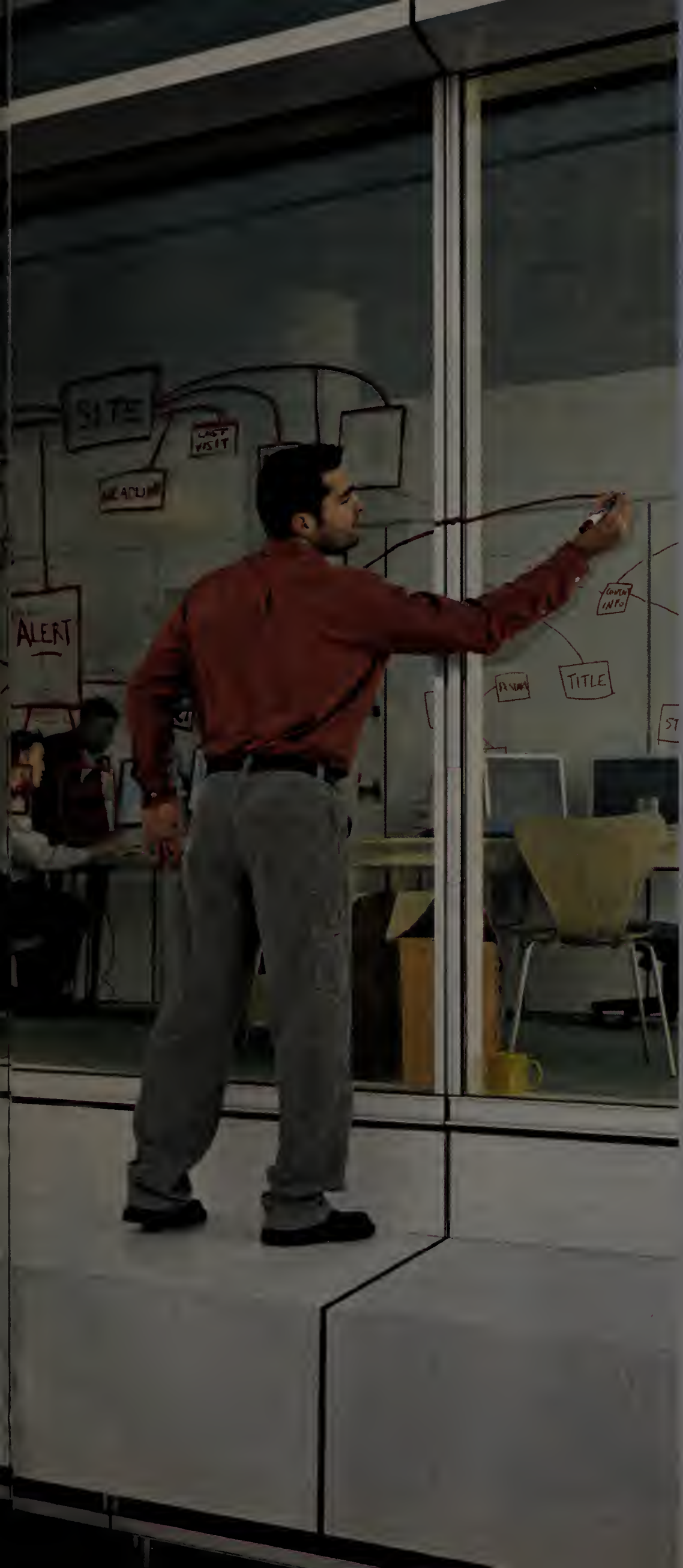

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SECURITY MANAGER'S JOURNAL

Good Firewalls Make Good Neighbors

Placing firewalls between corporate divisions can help prevent the spread of malicious code, but Vince Tuesday finds that getting the rules right isn't easy. **Page 34**

QUICKSTUDY

Windows Installer

This Windows service allows applications to be installed cleanly and consistently and tracks the use of system resources to minimize conflicts. **Page 32**

Web Services Put GIS on the Map

Geographic information system vendors are moving to support Web services. This should enable IT to embed powerful analysis and mapping services in familiar end-user applications. **Page 30**

CRM To Go

Hosted CRM services offer easier and faster setup and more customization options. But integration, data control, training and even privacy issues could shift the decision toward an in-house implementation. By Mark Hall

DECISIONONE had just scrapped its IT outsourcing deal with Electronic Data Systems Corp., but not every one of its applications was destined to be run inside its own data center. Its CRM effort would either continue as a mishmash of Excel spreadsheets or move to a hosted service.

The reason: "We wanted to get our CRM software up and running in 45 days," recalls Frank Tait, vice president of marketing at the Frazer, Pa.-based IT support services firm. "We were also constrained about how much we could do because we were bringing all of IT back in-house."

DecisionOne opted to go the hosted route and selected a service offered by Salesforce.com Inc., which met that 45-day deadline for providing a CRM system to the company's 140 sales and marketing users. That success underscores one of the key benefits of subscription-based CRM: swift deployment. But there are technical challenges beyond the need for timely implementation that companies must consider when deciding whether to subscribe to a CRM software service, or license and run CRM software themselves. IT managers must evaluate potential problems,

RICHARD BORGE

which run the gamut from customization and training to data integration and security.

For some companies, customizing CRM to reflect the needs of a given sales organization is critical. When subscription-based CRM first appeared, that wasn't possible. Customization flew in the face of the application service provider (ASP) business model of managing a single code base for many customers.

But as CRM subscribers become more sophisticated, rigid restrictions on modifying the underlying code limited their capabilities. Some companies looked elsewhere. "Every CRM implementation becomes almost a proprietary product," says David Leibowitz, managing director of solutions architecture at Lexington, Mass.-based Excelergy Corp., which supports utility and telecommunications operations. That's why Excelergy shifted from Salesforce.com's hosted service to an in-house implementation of Microsoft Corp.'s CRM software.

Faced with demands for customization, San Francisco-based Salesforce.com, the current leader in the CRM subscription market, shifted its strategy earlier this year with the introduction of Sforce, now in its 2.0 release. According to company Chief Technology Officer Cary Fulbright, users "can create their own custom data entities." He adds, "We control all the code, but they can change data types."

Yamil Hernandez, director of IT at Sigma-Tau Pharmaceuticals Inc. in Gaithersburg, Md., has done just that, changing a standard Salesforce.com field to match those needed for his 35-member sales team's custom work with dialysis centers.

Application integration has been another stumbling block for ASPs. Salesforce.com has struck deals with third-party suppliers, such as Tibco Software Inc. in Palo Alto, Calif., to provide standard connectors between its software and other enterprise applications.

But even with those changes, the subscription model for CRM doesn't interest Michael Fields, director of business sales operations at Cingular Wireless in Atlanta. That's because the most critical aspect of CRM, he argues, "is solving business process problems." That means much more than making application changes at the field level. True business process integration, he says, requires deep links into in-house and customized proprietary applications as well as off-the-shelf software.

Economies of Scale

A longtime user of CRM software from Siebel Systems Inc. in San Mateo, Calif., Fields says that a large company like his, with 1,800 CRM users, has to be able to manage an application more rigorously. The fact that ASPs regularly update their code bases makes him extremely nervous because of the possibility that an integrated business process could be broken by a change that he doesn't control. But Fields isn't opposed to subscription services on principle. In fact, he says a hybrid approach might be ideal for tying third-party partners into his CRM process (see below).

HOSTED CRM ROI

Return on investment can vary when measuring long- vs. short-term results:

QuickLink 43110
www.computerworld.com

Fulbright disputes the notion that his company's ASP model limits Salesforce.com to smaller operations. So far, the company's biggest deployment is 1,000 users. However, he claims that Salesforce.com could handle a business with up to 50,000 seats.

But size isn't the issue when tight integration is the problem, says Leibowitz. He says that midsize companies often need to link their messaging infrastructure with their CRM operations. Leibowitz says he chose Microsoft because it has "done an extraordinarily good job of integrating its CRM with Outlook and Exchange."

CRM SYSTEMS:

Rent or Buy?

CRM SUBSCRIPTION SERVICES

- ⊕ Offer rapid deployment
- ⊕ Provide some customization and integration options
- ⊖ Allow less control over data location and privacy

LICENSED CRM SOFTWARE

- ⊕ Is highly customizable
- ⊕ Integrates more tightly with other applications
- ⊕ Offers complete control over locally housed application servers and data
- ⊖ Requires more time to deploy

Even Salesforce.com user Hernandez says he wishes his ASP's software had better real-time links to Microsoft's BizTalk. "As a Microsoft shop, that would be nice to have," he says. "But it's not a must-have."

"Salesforce.com's product does its thing very well," says Adam Honig, president of Akibia Consulting in Westboro, Mass. "But it's a corkscrew. Siebel is a Swiss Army Knife." For example, Siebel's flexibility comes into play particularly well when you've tied in your call center operations with CRM, Honig says. That's because call centers are subject to "peaks and valleys" in demand, and you need to be able to handle the performance variance, he says.

Benjamin Holtz, CEO of Green Beacon Solutions LLC in Watertown, Mass., agrees, adding that it can come down to simple issues such as being able to reboot a CRM server. "Sometimes, you just need to be able to get your arms around the box," he says.

ASPs dismiss such criticism. Keith Raffle, former chairman of UpShot Corp., a subscription-based CRM software company recently bought by Siebel, says service-level agreements protect users from downtime and outages.

User training is often touted as another benefit of subscription-based CRM. Tait lauds Salesforce.com's Web-based training and is delighted at "not having to maintain training manuals." This is particularly helpful when Salesforce.com adds features to its software, he says. But regular updates by ASPs to their applications scare Holtz. "New stuff confuses users," he claims. "Sales guys are inherently idiots."

Privacy is another concern. Although there haven't been any scandals about ASPs losing user data or having it fall into the wrong hands, IDC analyst Robert Blumstein advises potential CRM subscribers to investigate the safeguards an ASP has in place to protect your data. "It's going to be your responsibility," he says. And privacy laws could prove to be even trickier, warns Honig, especially if you have international or medical customer data stored outside your premises. You should review HIPAA restrictions and other nations' strict privacy laws carefully before opting for an ASP. **43211**

THE THIRD OPTION:

Hybrid CRM

This month, Siebel Systems went live with its Siebel OnDemand subscription CRM service, which is managed by IBM as part of its OnDemand services. Users of Siebel 6.0 software or higher will be able to integrate their on-premises licensed CRM application with the online version, creating a hybrid of rented and owned software that could make hosted systems an attractive way to extend in-house enterprise CRM systems.

That approach appeals to Michael Fields. "Our third-party partners can use it for lead generation," says Cingular Wireless' director of business sales operations. Right now, sales leads from third parties need to be entered into Cingular's Siebel software to be distributed to the right sales staffers.

According to Ken Rudin, vice president and general manager for Siebel CRM OnDemand, prebuilt connectors let OnDemand and on-premise versions of the application automatically synchronize changes on both sides.

Fields says the hybrid approach offers the benefits of application integration and adds third-party sales efforts to Cingular's automation of business processes. And Siebel's $70 million purchase last month of UpShot, a subscription-based CRM company, will add to OnDemand's capabilities, claims Rudin. He says UpShot's tight integration with Microsoft Outlook and handheld devices will be added to the OnDemand product.

So far, competitors haven't followed suit. Bellevue, Wash.-based Onyx Software Corp., like Siebel, partnered with IBM to create its own OnDemand version of its CRM package, but it doesn't do so in subscription mode. It's a hosted but fully licensed application. The leading ASP for online-only CRM software, Salesforce.com, says it has no plans to offer an on-premise licensed version of its software.

– Mark Hall

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WEB SERVICES PUT GIS ON THE Map

Web services enable IT to easily embed powerful geographic information system analysis and mapping capabilities in familiar end-user applications. By Robert L. Mitchell

FOR EDENS & AVANT, which builds and manage shopping centers, location is everything. Building in a neighborhood with the wrong demographics for its retail tenants or where traffic flow or access is poor can lead to disaster, says David Beitz, geographic and marketing information systems manager at the $2.3 billion real estate investment firm. "The cost is tremendous if you build a shopping center somewhere and a major tenant leaves. You're going to lose a lot of money," he says.

To ensure that doesn't happen, Beitz uses geographic information system (GIS) tools and data from Environmental Systems Research Institute Inc. (ESRI) in Redlands, Calif. By creating a geographic map and overlays that plot customer populations and demographics, competing businesses and street and traffic patterns, Beitz can produce a visual report that decision-makers can use. The entire process takes just a few minutes.

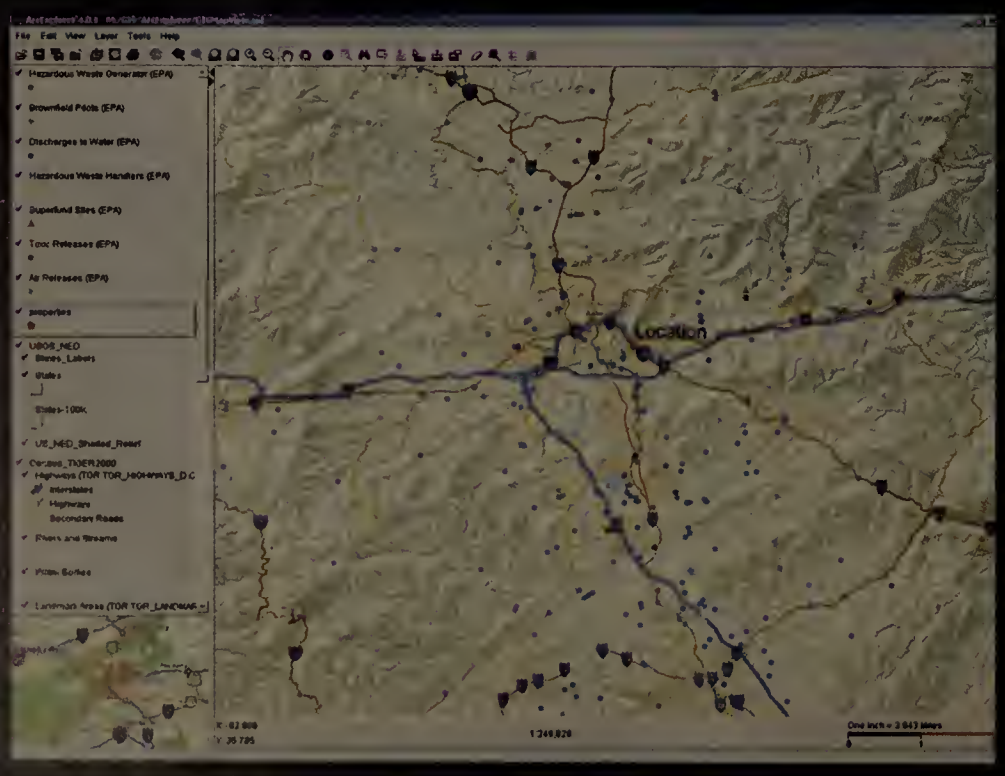
Today, Columbia, S.C.-based Edens & Avant purchases the underlying data and then periodically updates it. But Beitz is also experimenting with accessing current data via the Web. Using ESRI's ArcExplorer Java Edition viewer, Beitz can quickly build a map that combines his internal data with the latest street data from the U.S. Census Bureau and toxic waste site data from the Environmental Protection Agency (see image). ESRI offers both sets of data as Web services. "You're not downloading it; you're basically viewing it," Beitz says, so there's no need to use a local copy of that data.

Beitz uses ArcExplorer for initial screening of prospective sites but says he still does in-depth analysis with data purchased for use in-house. "You can't do really good-looking maps [using ArcExplorer]," he says. But that may change as GIS tool vendors, data providers and users gradually make more GIS data and applications available as Web services.

Rapidly evolving support for Web services in GIS is not only changing how analysts access and view maps and data; vendors and analysts say it will also facilitate the integration of GIS functions into a wide range of applications. In so doing, Web services will open up GIS to decision-makers, who will have direct access to some capabilities that are available today only by working with a specialist.

"Historically, geospatial has been seen as something kind of in the basement," says George Moon, chief technology officer at Troy, N.Y.-based MapInfo Corp. Web services can put relevant GIS applications on the end user's desktop by embedding them within familiar applications. "I don't have to understand a proprietary interface to embed code," he says.

A suite of emerging Web services standards from the Open GIS Consortium Inc. (OGC) in Wayland, Mass., is facilitating this transition by enabling interoperability. The most heavily used of those standards, Web Map Service, Web Feature Service and the XML-based Geography Markup Language, "allow applications to access distributed spatial data across the Internet to any OGC-enabled repository," says Carl Reed, executive director of the



ANATOMY OF AN IMAGE

This map, viewed within software vendor Environmental Systems Research Institute Inc.'s ArcExplorer viewer, includes data overlays that are accessed in real time over the Web to show the street network, terrain and proximity of EPA toxic waste sites. The map includes a layer containing properties specified by the user and accesses ESRI's ArcIMS map services to view three overlays. These include a TIGER 2000 Map service that provides high-resolution terrain data from the U.S. Geological Survey, a street map overlay from the U.S. Census TIGER database and EPA hazardous waste site data.

RAY NG

OPENING UP GIS

CARL REED is the executive director of the specification program at the Open GIS Consortium. He recently spoke with Robert L. Mitchell about the way Web services standards are opening up the world of GIS.

What is the OGC? We're a nonprofit with over 260 members. It's just about all the GIS vendors, integrators, broad IT industry [representation]. The goal is to enter into a consensus process to advance open specifications that can be used globally to enable geospatial technologies to plug and play.

All of the OGC specifications are publicly available, open for use by anybody, and there are no royalties.

What's the benefit to enterprise IT? When someone buys into a proprietary software system, it becomes very difficult for users to add new technologies in the future. The OGC was created to bring vendors together to agree on these open interfaces.

How have OpenGIS specifications changed the way users work with GIS and mapping technology? We are seeing a rather significant increase in the use of spatial Web services. We're seeing this expansion of Web services to appeal to specific user questions – a series of spatial services that allow people to make specific decisions. You can build spatial data infrastructures – geospatially enabled portals.

Is security a concern with GIS Web services? I think so. As with any data, holders of that information determine who should see that data. We use broader industry standards such as PKI encryption [to solve the problem].

Will OGC standards really make GIS products more open? Yes. The use of OpenGIS specifications in applications and technology products enables the implementation of vendor-neutral plug-and-play architectures.

Further, many organizations have now implemented production systems, accessible via the Web, that allow users to access spatial data distributed across many organizations and stored in many formats.

These systems may rely on GIS software from multiple vendors. Thus, use of an OpenGIS interface allows access, manipulation and display of spatial data without exposing the format of that data or any specific vendor's algorithms or intellectual property.

OGC's specification program.

"Advances in databases and analysis tools, coupled with enhanced Web capability, is bringing this to the masses," says Rob Enderle, an analyst at San Jose-based Enderle Group.

Microsoft Corp. is helping to broaden acceptance of mapping tools with MapPoint 2004, a street-mapping program that includes some demographic overlays. Users can buy the package or access MapPoint Web Services, which can be integrated into an application developer's Global Positioning System application.

Other vendors offer more sophisticated tools and are also adding Web services offerings, but "Microsoft appears to be the leader in just making things easier for Web deployment," Enderle says.

Web services extend the use of GIS by making the integration with other applications easier, according to MapInfo's Moon. "If I want to show a map to a customer in my address book, I don't have to embed that into the contact application. I can now expose that through a Web service to add value without having to [rewrite] my code base," he says.

The promise of up-to-date information is also attractive to Steve Wallace, senior strategic planner at Florida Farm Bureau Insurance Cos. in Gainesville, Fla. He uses GIS tools and data from MapInfo to qualify homeowner's policy applications and track changes in municipal boundaries.

While using Web services to gain access to regularly updated data sounds appealing, Wallace doesn't see that method ever replacing his internal GIS system. "Do I think that someone would build a Web service to do exactly what our company needs? Not likely. Some have tried, but they are rather simple," he says.

And despite the promise of GIS Web services, interoperability among GIS programs and data sources is far from seamless. "That's because the data has been defined differently. This is a big issue," says the OGC's Reed, noting that even details such as road width can affect an analysis when combining data in overlays. "We're working with states and counties to . . . deal with those differences on the fly so that the data becomes seamless," he adds.

But for now, says Bern Szukalski, product manager at ESRI, "those standards really aren't quite . . . mature." Today, they simply provide a "lowest common denominator" for mapping and GIS functions, he says.

ESRI, the industry heavyweight with perhaps the broadest range of products, repackages data into the Shapefile format that's optimized for use with its own products. ESRI's ArcExplorer viewer is designed to support Web services provided through its proprietary ArcIMS server software, although users can download a free extension to access Web services that support OpenGIS protocols. Support for the SOAP protocol won't appear until the next major release of its products, however.

Moon says MapInfo supports both OpenGIS and the World Wide Web Consortium's Web services standards, including SOAP, WSDL and UDDI, in products such as its miAware software for developing location-based services. "We're making sure all of our products can integrate to back-end services — our own or someone else's," he says.

Vendor adoption of GIS Web services is still a work in progress. But in five years, Reed predicts, access to spatial services online will be as ubiquitous as Internet access is today.

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AT A GLANCE

OPEN GIS STANDARDS

Of the many specifications promoted by the Open GIS Consortium, four are changing the way in which GIS systems are used, according to Executive Director Carl Reed. Here is a brief description of what each does. More information on these and other OpenGIS specifications can be found at *www.opengis.org*.

Web Map Service
A set of protocols that lets users create and display data overlays from multiple, heterogenous remote data sources as a single mapped image.

Web Feature Service
Allows clients and servers to access features in a standardized way.

Geography Markup Language
An XML-based format that describes how geographic information is to be transported and stored.

OpenGIS Location Services
This specification includes the OpenMobility Server open location services platform and Navigation Service, which is designed for route determination.

MAPPING THE VENDOR LANDSCAPE

For a sampling of GIS tool providers, visit:

QuickLink 43057
www.computerworld.com

Windows Installer

BY ROBERT L. MITCHELL

NO MORE DLL HELL. That was just one of Microsoft Corp.'s goals when it introduced the Windows Installer service along with Windows 2000 nearly four years ago. The service, which now runs on Windows XP, Windows Server 2003 and earlier versions of Windows by way of service packs, was designed to provide much-needed consistency to the Windows application installation process.

Before Windows Installer was available, software developers created their own automated installation scripts or used third-party authoring tools to create an installation program. Each followed different rules, had a limited ability to keep track of files also in use by other applications and had no ability at all to track shared use of nonfile resources such Windows registry keys.

This situation resulted in the classic problem in which one application would install a Dynamic Link Library (DLL) in the Windows system directory only to have another application overwrite it with a different version, breaking the first application in the process. Uninstall programs likewise unknowingly removed DLLs or changed registry keys that other applications were sharing.

DEFINITION:

Windows Installer is a Windows service that allows applications to be installed cleanly and consistently and tracks the use of system resources to minimize conflicts.

QUICK STUDY

Windows Installer enforces a single set of installation rules that all compliant applications follow, including versioning rules that prevent the overwriting of newer files with older ones. It also keeps track of all changes made to Windows, including any made to the file system and registry keys.

For Installer to work, software developers must replace traditional installation scripts with Windows Installer package files (called .MSI files, after the file extension). And since Windows Installer can track only installations that follow the .MSI format, end users will reap the full benefits only when all applications installed on a Windows machine support Windows Installer.

An .MSI package functions as a small relational database with fields containing all of the information and instructions that Windows Installer needs to successfully deploy an application. At runtime, Windows Installer converts the .MSI data into an install script and an uninstall script. This allows for a graceful rollback of the application and restoration of the system to its previous state if an install fails. For example, if an upgrade to Office System fails, the system can roll back to the previously installed Office XP version and the user can continue working — something that didn't always happen before.

The .MSI breaks the installation data into three parts (see diagram). This architecture enables it to install applications without ever having to manage individual resources directly. Instead, it groups registry keys, files and other resources into components, such as the Speller Engine in Microsoft Office. Components group together interdependent resources, such as an executable program file and the registry key that holds license information.

Windows Installer tracks all changes made to the system during the installation at the component level and keeps "refcounts" that tell how many applications share a given component. It also assigns each component a globally unique identifier (called a GUID or "gwid") and a keypath, which Windows uses to identify the component. By maintaining refcounts at the component level rather than for each individual resource, Windows Installer can easily track all shared resources, not just files. DLLs and other resources are deleted only when the last component that uses them is deleted.

The .MSI package groups components into features. These are the user-recognizable chunks of an application, including options that users can choose to install, such as Word in the Office suite. Subfeatures, such as a spell checker, can be nested within a larger feature for more granular control of the installation process. Features can share components, and they allow more installation options than do scripted installs. With .MSI, features can be installed to run locally, to run from a secondary location such as a product CD, or they can be "advertised," appearing in an application's menu but installing only when the user invokes the feature. All of the features that make up an application are then aggregated into a single .MSI file.

Management API

Windows Installer also includes a management application programming interface (API) that it uses to keep track of installed products, features, components and keypath data. Using this API, an application management tool can repair a broken application. Through the API, it can determine which component isn't working and reinstall just that component and its associated resources, rather than the entire application.

Administrators can customize the .MSI package by creating a complementary transform (or .MST) file. The transform can provide answers to Windows Installer when the .MSI file calls for user input, such as choosing which options to install or the correct installation path. It can also remove unwanted features from the basic installation.

Software vendors have been slow to adopt the .MSI format. Nearly four years after Windows Installer's release, many applications still use non-.MSI installation routines. To get the full benefits of Installer, enterprise administrators have turned to automated application packaging tools [Quicklink 42711]. Such tools can create .MSI packages for noncompliant applications as well as build transforms for existing packages. For most other users, however, the legacy of installation conflicts will linger until every noncompliant Windows application on the desktop has been updated.

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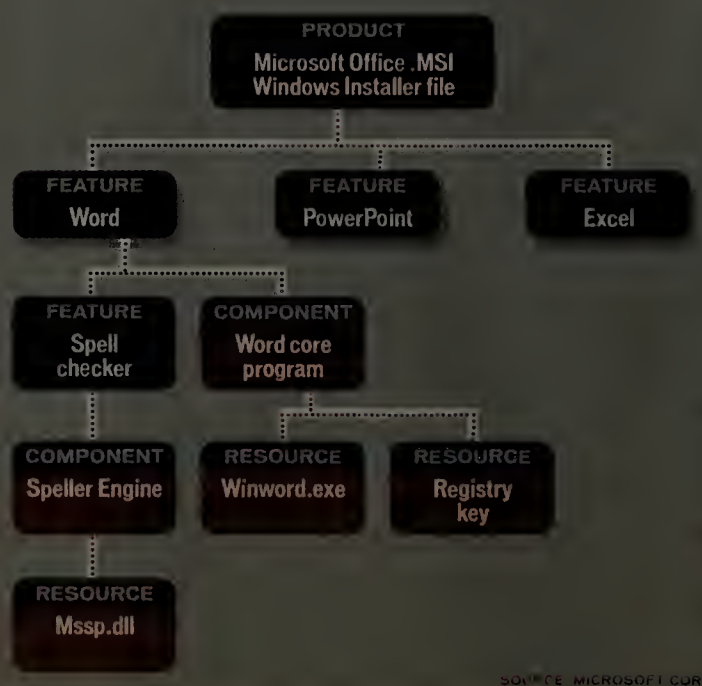
How Windows Installer Packages an Application

In this example, the Windows Installer .MST file contains the Office product and all of its elements, including features that users can deploy. Each feature is associated with components, each of which references a set of registry key settings, .DLL files and other resources that must be installed as a group. In this way, components may be installed or deleted, but resources remain unaffected unless no other component is using them.



COMING SOON

Microsoft says Windows Installer 3.0 will have features aimed at enhanced security.

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Good Firewalls Make Good Neighbors

Erecting internal security fences can stop attacks from spreading between corporate divisions – if you can get the rules right.

By Vince Tuesday

SECURITY MANAGER'S JOURNAL

WE'VE DECIDED that as a corporate subsidiary, it's time to leave home and strike out on our own from an IT security perspective. Historically, because the parent organization owns us, we have trusted them completely. We have some 10 connections with no controls between our networks and theirs.

This arrangement has worked well until now, so we haven't done very much monitoring on the links between our networks. But we began to question this arrangement when the SQL Slammer worm infected our network recently. Their group feels pretty certain that we infected them, and my team thinks the opposite. Either way, going forward we need protections to make sure this can't happen again.

The simplest way to keep malicious code from spreading between our networks is to deploy firewalls and configure them so they limit traffic to what's needed and block everything else. So we announced our intentions to our colleagues and proceeded with the deployment. They weren't upset, since they feel that *they* will be protected from *us*.

Setting Up

Our first step was to identify all of the network links between our organizations. That was easy, but there were more than I expected. I think we found them all, but it will be interesting to see if we flush out any more links.

Once we had found the physical connections, it was a simple task to deploy the hardware firewalls. In fact, we surprised our parent company because we spent significant effort educating them that this was coming so they could help us with the rules. Once their key decision-makers gave us the green light, we went ahead with the deployment. We completed the work while the other group was still informing its IT troops that this had been approved.

Putting the hardware in place is the expensive part, but that alone doesn't give you any protection. For that you need a well-thought-out rule base that limits high-risk connections while allowing business-critical traffic to flow freely.

Our first approach was to enable intrusion-prevention system capabilities within the firewall. Firewall vendors put a great marketing spin on this feature: "You don't need an expensive burglar alarm to tell you about break-ins on your network, because our firewall just stops them all dead." I haven't done a wide review of intrusion-prevention systems in firewalls, but with our firewalls, it's pretty much rubbish. It will successfully identify and stop only about 20 known attacks. The list of attacks is built into the firewall operating system rather than using signature updates like our antivirus software does.

> **Our grand plan of protecting 'us' from 'them' and vice versa has now been split into two phases.**

I suppose we'll be safe if Kevin Mitnick returns to his naughty ways but doesn't update any of his attacks from the early '90s. But given all the new attacks that the firewall won't stop, including Blaster and even Slammer, the fact that it protects us from risks like the ICMP ping of death isn't much to write home about.

The Good and the Bad

For real protection, we needed rules that filter bad traffic and let the good get through. We thought the good would be easy to define. We talked to each application owner, including the Web and e-mail teams. Once we had the addresses of their servers and the protocols they wanted to use, we could add rules to allow that and steadily work at the rest until we could add a default deny rule and provide protection from unknown threats.

We were about 24 hours away from enabling the first set of rules when we naively asked what would happen if one of the connections went down. Does the traffic route via one of the other connections to the parent? If it does, then we'd need to make sure that the rules would let the links still work once rerouted. I'd hate to have the firewalls block critical traffic in a disaster recovery situation.

Nobody knew the answer. We had no idea what would happen if a link went down, and we didn't want to test live connections. But we couldn't enable the rules until we knew the answer, so we went back to the drawing board.

Even though we couldn't know for certain what good traffic would do, I thought we could at least limit damage from unknown protocols. There must be many IP protocols and TCP ports that aren't used on our network. If we blocked those, then weaknesses in our existing services might be exposed, but we'd notice if an attacker tried to add or use a new protocol.

As we worked on generating that list and informing people that we would be putting the first deny rules in, I started asking my contacts in the industry about our plan. Putting firewalls on internal network segments is hardly an original idea, so I figured that the problem of generating rule sets and reducing the risk of attack while keeping the business going must be a common one with well-known fixes. Sadly, the typical responses I got were, "Oh, that's a hard problem" and "You don't want to try that." If any of you know a good way to do this, I welcome your tips.

Now, as we uncover problem after problem, I've reduced the project's scope to keep it on track. Our grand plan of protecting "us" from "them" and vice versa has now been split into two phases. Phase 1 will just deliver protection of our systems from their networks by limiting inbound connections. Outbound connections will be left untouched. This reduced scope significantly reduces our work and will still keep our bosses happy. I guess the final stage of leaving home is to learn to let home get on without you.

WHAT DO YOU THINK?

This week's journal is written by a real security manager, "Vince Tuesday," whose name and employer have been disguised for obvious reasons. Contact him at vince.tuesday@hushmail.com, or join the discussion in our forum: **QuickLink a1590**

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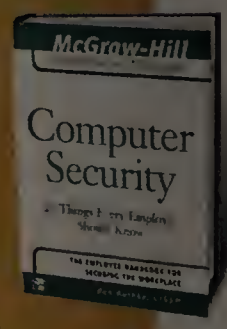
SECURITY LOG

Security Bookshelf

Computer Security, 20 Things Every Employee Should Know, **by Ben Rothke; McGraw-Hill, 2004**



At 51 pages, this title is little more than a pamphlet compared with most IT security books. But here, brevity is a virtue, and I don't expect this slim volume to spend much time on the shelf.

Full of pithy, interesting quotes and bite-size chunks of information, this primer will fit perfectly into your IT security awareness campaign or into the introduction pack for every new hire.

This whistle-stop tour of information security hits all the right notes, is an easy read and is credible without resorting to fear tactics. My desk copy has already been well thumbed by those waiting for me to finish phone calls.

A large-scale security group could probably gather this same information and tailor it to their internal audience, but why bother? For smaller shops and those without much spare time, Rothke's book is a superb addition to any security awareness push.

– Vince Tuesday

NetContinuum Adds Net Firewall

Web application firewall maker NetContinuum Inc. announced a new version of its NC-1000 Web Security Gateway that includes network firewall features. NC-1000 Version 4.0 lets customers use a single device to stop network attacks using common protocols such as FTP and DNS, in addition to those targeting Web applications communicating over server port 80, according to Santa Clara, Calif.-based NetContinuum.

NC-1000 Version 4.0 is due in January and will sell for $28,000. Existing users are eligible for a free upgrade.

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BRIEFS

IBM Enhances Grid Offerings . . .

IBM Global Services last week enhanced its grid computing offering with services designed to provide an assessment methodology for determining grid total cost of ownership, as well as an implementation road map. The offering will also include deployment services for migrating existing applications to a grid model.

. . . And Announces Deal With Quantum

IBM announced last week that it will ship Quantum Corp.'s DLT VS160 tape drive with its eServer xSeries to customers worldwide. This partnership will provide midmarket customers with additional performance, positioning IBM's 40/80GB DLT half-high tape drive in the entry-level market, said San Jose-based Quantum.

Microsoft Updates CRM Software

Microsoft Corp. last week announced the general availability of Version 1.2 of its CRM software. The company launched CRM 1.0 last January. The update includes user interface improvements, additional data evaluation capabilities and further support for lead tracking.

WetStone Upgrades Its Stego Suite

WetStone Technologies Inc. in Cortland N.Y., announced the the next generation of its tool kit for detecting digital steganography, or the presence of communications hidden in digital files. Stego Suite 4.0 comprises two products: Stego Watch, which includes improved reporting and image-detection algorithms, and Stego Analyst, an image and audio analysis tool. Stego Suite 4.0 is available now at $1,995 for a single-user license, with discounts available for law enforcement agencies.

ROBERT L. MITCHELL

Dawn of the Undead Data

IN GEORGE ROMERO'S classic 1968 horror film, *Night of the Living Dead*, the deceased rose from their graves to terrorize the living. Many IT organizations now find themselves in a similar nightmare as data they thought was dead and gone has risen from the storage crypt. When hackers, competitors or governments apply the right technologies, the data you thought you had destroyed, and which has stumbled outside the corporate gates on discarded PC hard disk drives, backup tapes and other zombie media, comes alive again. And opportunists are quick to use this data to extract their pound of flesh.

ROBERT L. MITCHELL is *Computerworld*'s senior features editor. Contact him at robert_mitchell@computerworld.com.

Take the case of the insurer that thought it had wiped the hard drives on retired PCs clean before disposing of them. Someone who bought one of those PCs and discovered sensitive data on it is blackmailing the company, says Bob Houghton, president of Redemtech Inc., a Hilliard, Ohio-based recycler of PCs and other IT products. And since the breach involved customer data, the company must disclose it to its customers under a California privacy law.

The IT staff may have simply overlooked erasing that PC in the disposal process. But the true horror is that in many cases, even wiped data on those 1,000 PCs you just sent out the door can be resuscitated.

And third-party vendors that claim to wipe PC disks before disposing of them don't always do the job right, either. One IT executive at a large financial services company outsourced the task to four different vendors. Now she's in litigation with three of them, according to Gartner analyst Frances O'Brien.

Redemtech says that on average, 25% of the systems it audits still have data on them even though IT thought the systems had been wiped clean. IT managers don't realize that their own best practices, if they have them, aren't being followed. And even when they are, the erasure process may simply transport the data to the land of the undead.

Consider the options. An fdisk breaks the partition but leaves data on the drive that any disk utility can read. A quick format only overwrites the system area of the disk. A low-level format overwrites most data in sectors accessible by the operating system but leaves many areas untouched. Consumer-grade disk-wiping tools supposedly overwrite every sector, but data recovery specialists say they often retrieve data that these tools have left behind.

Then there's degaussing — applying a strong magnetic field to the disk to erase it. This works well for backup tapes, but many degaussers aren't powerful enough to erase newer hard disk drives. And since degaussing renders the drive inoperable, there's no easy way to verify erasure.

Redemtech and others use specialized tools to erase disk drives. Their technicians boot a custom utility from a DOS diskette or CD, and the software addresses the IDE or SCSI disk controller circuitry directly, bypassing the operating system installed on the target hard disk drive. But even then, data zombies lurk in the shadows.

A disk drive head is smaller than the track within which it must write. It plows along the track like a luge sled, leaving its mark through the center while spraying some data up along the sides. A single erasure pass leaves much of this roadside data intact — a phenomenon called residual magnetism. Although the data is now out of the realm of easy recovery, if it's valuable enough — say, the recipe for Coca-Cola or an early earnings report — organizations with the right resources may take a shot at it. The process involves removing the platters from the disk drive and using very expensive equipment to access the residual data.

To minimize this risk, disposal firms dealing with sensitive data make at least three erasure passes, and sometimes seven or more, to wash away as much residual data as possible. At that point, mere mortals probably can't retrieve your data. "The NSA would still be able to recover data off that drive. They have very sophisticated equipment," claims Tony Thornton, Redemtech's MIS IT director. Then again, if the National Security Agency is reading your media, you probably have much bigger problems.

In the end, there's only one way to know for certain that your data won't rise again: Physically shred hard disk drives and other storage media. But the correct action to take depends on the risk. For most PCs, a multipass erasure will suffice. But if the process doesn't include an audit trail with specific snapshots of the sectors that verify erasure, be prepared to see your data rise again. **43381**

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OPINION
Taming the Wild, Wild West
Barbara Gomolski predicts a flood of IT project requests from business units in 2004, and she offers tips on how to figure out when to say yes and when to say no. **Page 46**

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Manufacturers are using sophisticated software that analyzes customer profitability so they can provide better service to high-profit customers and charge higher prices for low-profit orders. **Page 42**

Smart Tags, High Costs

RFID technology is hot, but the costs and complexity mean that ROI for suppliers is a long way off. **By Mary Brandel**

A LITTLE OVER A YEAR AGO, when Henkel Consumer Adhesives Inc. needed to replace its warehouse management system, the company chose a forward-thinking vendor that was planning to use radio frequency identification, or RFID, which was then, as now, being touted as the "next great thing" in supply chain automation.

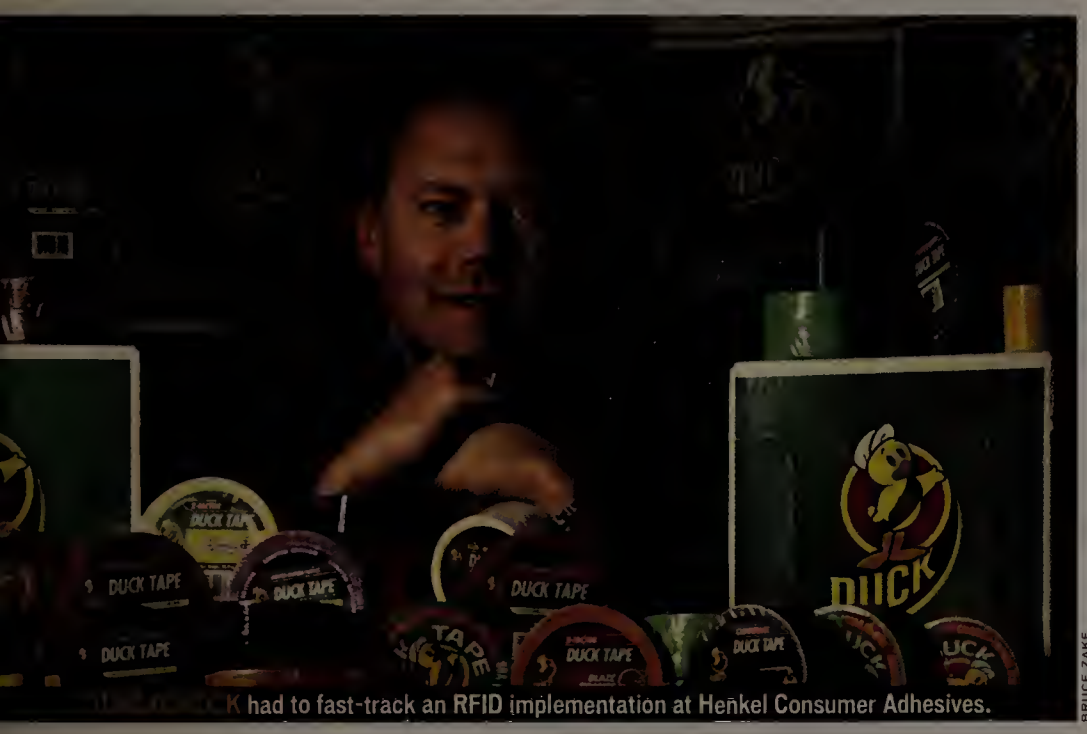
Little did executives at Avon, Ohio-based Henkel know that just a year later, thanks to a mandate that Wal-Mart Stores Inc. issued to its top 100 suppliers, they would be planning a pilot based on this costly and still problematic technology, with the intention of going live by January 2005.

RFID is forecast to be a $3 billion market within five years as this sophisticated tracking technology gradually begins replacing its cheaper but less powerful predecessor, the bar code. Compared with bar codes, RFID tags store more information about the products or containers they're placed on. And they don't require manual scanning — RFID readers capture data automatically when tagged items or containers are within a certain range.

On a receiving dock an entire pallet could be read all at once, increasing productivity, reducing labor costs and eliminating human error. Or an RFID tag could tell workers where to place containers coming into a warehouse.

When the data is shared among retailers and manufacturers, it enables real-time tracking of goods, resulting in unprecedented visibility into the supply chain, thus reducing shrinkage, idle inventory and out-of-stock items. Fast-selling items can be replenished more quickly, increasing revenue for both suppliers and retailers.

Large retailers such as Benetton and Marks & Spencer claim returns on their RFID investments, and Wal-Mart predicts 10% to 20% improvements in labor efficiencies in its distribution centers.



K had to fast-track an RFID implementation at Henkel Consumer Adhesives.

BRUCE ZAKE

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Supply Chain

However, the vast majority of suppliers will take at least two years to see any return from their RFID implementations, observers say. In fact, if the Wal-Mart mandate hadn't occurred, analysts say RFID would likely have followed an adoption and maturation cycle similar to that of bar codes, which took at least a decade to achieve widespread adoption.

AMR Research Inc. in Boston estimates that suppliers will spend $10 million to $20 million each to meet Wal-Mart's mandate, including hardware, engineering services and integration with existing software. ARC Advisory Group Inc. in Dedham, Mass., puts the cost at $250 million. Either way, "it's clear that the payback will be far longer than two years," says Steve Banker, service director of supply chain management at ARC.

Indeed, although Henkel anticipates great benefits — including reduced inventory, better manufacturing planning, reduced cycle time and, ultimately, higher sales, "we might have moved at a different pace" if it weren't for Wal-Mart, acknowledges Gene E. Obrock, vice president of operations at Henkel, best known for its Duck brand of duct tape. An ROI model, Obrock says, isn't even relevant at this point. "The technology is so new that even if we set up an ROI analysis today, in a year we'd be developing a whole new ROI model and still revisiting it frequently," he says.

"If you're being forced to do it, then you have to do it," concurs Barry Mason, an analyst at Nucleus Research Inc. "Others — while they should take this technology seriously — need to take a wait-and-see approach."

Overcoming Complexity

One way to lower costs is to delay bulk tag purchasing until prices drop, which many, including Obrock, see as inevitable, particularly with the billions of tags Wal-Mart's suppliers will de-

mand. With tags costing 30 cents on average, only certain products — watches, DVDs, CDs, for instance — would be worth tagging.

According to Gartner Inc., the cost of tags will have to fall to 10 cents each before the price is right for pallet- and container-level tagging, and it will have to hit 5 cents for item-level tagging to be affordable. Some observers predict 5-cent tags by 2006, but others say that's optimistic.

But tag costs are only the beginning. Consider if a supplier simply complied with Wal-Mart's mandate — what some call the "slap and ship" model. In this approach, suppliers would tag containers right before they leave the warehouse, not when they come off the manufacturing line. This means that when a truck arrives at the warehouse, the containers destined for Wal-Mart need to be segregated, sent to special tag-printing stations and placed on separate pallets. "You're rearranging the warehouse to accommodate this — how much will that cost?" Banker says.

Furthermore, older warehouse management systems will have to be customized, which can cost $50,000 or more. Special middleware will need to be added to accept, sort and translate the new RFID data for the warehouse management system and to process advance shipping notices in a new format. "Believe it or not, this is the cheap path," Banker says.

The other approach is to push RFID further back into the manufacturing process, tagging containers before they reach the warehouse or even requesting your own suppliers to adopt RFID. This way, suppliers can reduce labor costs at the receiving dock and speed shipping processes. But it's questionable whether this offers a compelling ROI for many suppliers, which — unlike retailers — may already operate at high levels of inventory accuracy. "If they're at 99% efficiency now, and RFID brings them to 99.5%, that in no way offsets costs," says John Fontanella, vice president at AMR.

Wal-Mart itself is encouraging suppliers to do more than slap and ship. "You have to capture the information and put it back into the system to make better decisions," Obrock says. "If you do it any other way, you're short-cutting your ability to generate savings."

Of course, this adds more integration costs and requires a re-engineering of business processes — still with no short-term ROI. For Henkel, figuring out how to do that will likely take the better part of six months. "We'll be looking at where the technology fits, what applications we want to take advantage of, what procedural changes we'll need to make and what those changes mean in terms of cost savings," Obrock says.

Where RFID Works Best

Still Fontanella and others say there's a way to both comply with Wal-Mart and achieve shorter-term payback. It involves looking within your company and defining a discrete process that could benefit from RFID automation.

Fontanella suggests considering an area where process discipline is very important yet difficult to achieve manually. For example, International Paper Co., had problems reading bar codes on its massive rolls of paper when the rolls were stacked deeply. In addition, when rolls were cut to fill an order, the bar code was sometimes cut with them, leaving partial rolls with no indication of their grade or the amount left. Stamford, Conn.-based International Paper inserted RFID tags deep within the rolls, thus increasing inventory accuracy, eliminating waste, reducing operating costs and decreasing inventory levels.

Sometimes the environment itself calls for RFID. International Paper's warehouse, for instance, is very dusty, making bar-code reading difficult.

There are other rules of thumb to consider when looking for processes that would benefit from RFID. For one thing, experts advise looking for activities that involve a lot of manual labor — if you have 500 employees using bar code readers to scan tens of thousands of packages each day, for example.

Another possibility is order-picking. "If a shipper needs to pick three of one product, eight of another and 10 of another and put it on a pallet, with a reader mounted right on the equipment as the person is filling the order, it can ensure the person isn't counting wrong," Mason says.

Large or high-value goods are also good candidates for RFID tracking because they yield better ROI than low-value goods, since the per-tag cost is less of an issue. Plus, Banker points out that better asset management helps reduce theft.

And one way to track high-value goods is by their containers. TrenStar, a mobile asset management firm that uses RFID to help companies such as beer distributors in the U.K. track their containers as they move through the supply chain, chooses to use RFID when the container itself is valuable. "It's more worthwhile to track a container that costs $1,200 than a cardboard box," says David Adams, senior vice president of corporate strategy at the Englewood, Colo.-based company. TrenStar claims to have decreased cycle time for beer distributors and cut keg loss by two-thirds.

And low-cost goods can have high value when they hold a key place in a manufacturing process, Adams points out. For instance, a container of 39-cent spark plugs might cost $4, but if the part doesn't arrive at the right point in the manufacturing process, "it could shut down the whole plant," he says. TrenStar has been conducting a pilot at Kraft Foods Inc. in which it manages the process of sending stainless steel containers to Kraft suppliers to fill with processed fruit for yogurt. Because the containers are tagged, Kraft can look on a TrenStar Web to learn where the containers are and when they will arrive at its plant. With this information, Kraft can plan production runs more accurately.

Some of these applications may call for more expensive and more mature RFID technology, such as active tags or those with proprietary standards — not the passive tags Wal-Mart is mandating.

Unexpected Benefits

Despite the long-term ROI, as suppliers experiment with RFID, Fontanella believes innovative uses of the technology will emerge. Indeed ROI can come from unexpected places. Adams points out that because his beer-brewing clients were able to produce audit trails of where their kegs had been, they were able to receive a tax credit for the ullage, or waste beer at the bottom of the empty keg.

And in the end, companies like Henkel say they are glad to be investing in innovative technology now. "Why not challenge ourselves by getting on the front end of this thing, while people are still sharing information?" Obrock says. "A year or two from now, companies that have perfected their use of RFID technology won't be talking about it — they'll be using it for competitive advantage, and those that aren't on board will be experimenting in the dark." **43198**

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RFID Plans

Nucleus Research surveyed representatives from 22 manufacturing companies that use supply chain management systems.

- **18% said they use RFID.**
- **12% said they have plans to implement RFID in the near future.**
- **70% said they have no plans to implement RFID in the next six months.**
- **69% of those that aren't using RFID said the cost needs to come down before they will consider it.**
- **25% of those that aren't using it cited investments in optical scanners and bar code readers as the primary source of their hesitancy.**
- **24% of all respondents said they have customers using RFID, and 27% said they have suppliers using it.**

A Four-Step Process

GRADUAL ADOPTION OF RFID will follow a four-level road map, says John Fontanella, an analyst at AMR Research.

- **Level 1** includes discrete RFID applications like those being piloted at some large retailers and their suppliers.
- **At Level 2,** RFID is applied to two or more units within a company. For example, a large aerospace manufacturer used RFID tags to monitor the flow of material from receiving to its production line.
- **At Level 3,** companies coordinate RFID-enabled processes with a limited number of supply chain participants. For example, a packaging manufacturer was unable to do vendor-managed inventory in a traditional way and therefore installed RFID readers at customer sites to monitor consumption of its products.
- **At Level 4,** RFID is used by virtually all supply chain participants throughout an industry, which is what Wal-Mart is attempting to bring about.

As Fontanella sees it, "such a vision is well beyond the capabilities of current technology. Instead of a natural evolution of 20 to 25 years, Wal-Mart is making it five years." Indeed, within one year's time, Henkel will attempt to push RFID into its own manufacturing sites and out to one or two suppliers, in addition to complying with Wal-Mart.

– Mary Brandel

RELIABILITY ISSUES

Getting RFID tags, antennas and readers to all work together in your environment requires trial and error.

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Offshore Dilemma

Sending technical support overseas is attractive, but it could expose production systems to new risks. By Patrick Thibodeau

IT MANAGERS have gotten very comfortable moving application development and maintenance to offshore providers. And offshore outsourcing of business processes, such as claims processing, is growing rapidly, too. But one area of outsourcing that hasn't caught on yet is offshore technical support for IT systems and infrastructure.

Simply put, the jobs of technical support personnel and systems administrators who work on real-time IT applications could be done remotely over a network connection to the system.

For example, if a problem arises with a CRM application, the troubleshooting and repair could be performed by workers in India. Server capacity management, network management and database and firewall administration are all functions that could be handled offshore.

OUTSOURCING WATCH 2003

But today, offshore support for production IT systems is a niche market, and because it's new, best practices haven't emerged. Users are cautious, given that this type of outsourcing involves access to mission-critical production systems and raises new concerns about issues such as security, privacy and intellectual property protection. Plus, once a company decides to shift its application and systems support to an overseas vendor, it will lose in-house expertise in those skills.

Infrastructure outsourcing is "a long-term decision — it's not easy to take it back," says G.K. Prasanna, who manages infrastructure services at Bangalore, India-based Wipro Ltd., a major overseas outsourcer.

Developing Best Practices

The financial services industry, which has been aggressive about using offshore IT services, recently began an effort through the Financial Services Technology Consortium (FSTC) in New York to develop a set of best practices for moving production and infrastructure support offshore.

Outsourcing application development is "fairly easy — there is no access into production systems," says Jim Salters, director of technology initiatives and project development at the FSTC. Faced with the new challenges of outsourcing technical support, the FSTC is developing an implementation playbook and hopes to have an initial version completed before the new year.

Stan Lepeak, an analyst at Meta Group Inc., says it's always a good idea for end users to band together to develop best practices, though he wonders how much information the competing financial services firms will be willing to share with one another.

Guidelines that make companies more comfortable with outsourcing technical support could help increase the use of offshore IT services. But the complexities uncovered by the FSTC's effort could also have the opposite effect and slow down the market. "It could lead them to the conclusion that this is a three- to five- to seven-year initiative" just to come up with the best practices, Lepeak says.

Standardizing Processes

Financial services firms are supporting the FSTC effort because without some kind of industry standards, "each bank ends up inventing their own processes," says an IT official at a major bank who asked not to be identified.

The FSTC is looking at issues like how to protect confidential data — such as trade secrets and customer information — from being disclosed or stolen by competitors, the outsourcing contractor or the contractor's employees.

Legal experts say the only way users can ensure that their interests are protected is to take nothing for granted. Penetration testing of a vendor's security processes and detailed background checks on employees will be needed.

The Federal Deposit Insurance Corp., for instance, prohibits financial services firms from hiring people with certain types of criminal convictions, and those restrictions also apply to people managing the systems of FDIC-insured banks overseas.

Some offshore providers, in an effort to reassure U.S. firms about their security standards, set strict rules about what their employees can bring into work, prohibiting them from carrying in laptops, handhelds and cell phones — anything that can be used to steal a company's intellectual property.

Advances in another IT arena may help make offshore outsourcing of technical support more feasible. Privacy laws have spurred the development of data-masking technologies that can disguise customers' personal data. These technologies can also protect data handled by offshore contractors. "Once I do that [data masking], I've opened the door to make it easier to go offshore," the bank IT official says.

Outsourcing parties also need to find ways to prevent trade secrets from falling into the hands of competitors. That could mean prohibiting an outsourcer from working with competitors or finding methods to segregate the work, said Marina Gracias, deputy general counsel at Providian Bancorp Services in San Francisco, at a recent conference. Another step is to prohibit an outsourcer's employees from seeking work with a competing company for a period of time, she said.

Infrastructure outsourcing is possible only because of the growing reliability of global networks, which make it possible for systems to be managed remotely over vast distances. While the telecommunications infrastructure is improving in many low-wage countries, it's far from perfect, and outsourcing experts say it could remain a hurdle for some companies in managing real-time systems.

But as long as a financial case can be made for moving relatively routine jobs offshore, the pressure on companies to take that step will be huge.

Mark Mayo, a partner at TPI, an outsourcing consultancy in The Woodlands, Texas, says 40% of the outsourcing deals TPI has been involved in this year have included some offshore component. Mayo says that may increase to 60% next year, adding that the outsourcing of infrastructure support will be one of the reasons for this growth.

42280

What Stays

Support for data center hardware, servers and mainframes will remain in the U.S. for the following reasons:

- Hardware and software licensing costs aren't any cheaper overseas.
- Real estate and data center construction costs can be just as expensive overseas.
- Loss of control of data is possible.
- It can be difficult to switch from one offshore vendor to another.

What Goes

Routine administrative and maintenance functions such as the following are offshoring candidates:

- Systems administration, including server capacity and firewall management
- Database administration
- Help desk operations
- Network management
- Real-time application support

Heavy industries are using **CRM data** to speed up the assembly line for high-profit customers and charge higher prices for low-profit orders. **By Ira Breskin**

Rust Belt CRM

THINK OF CRM, and you tend to think of retailers, banks and call centers serving mass-market consumers. But CRM software is quietly being used in the industrial heartland, too, to better manage sales of products ranging from steel plates to factory controls.

Manufacturers are beginning to take advantage of CRM data systems to fine-tune their factory forecasts and identify their most profitable products and customers. Then they can improve service to those customers — for example, by providing what essentially is an "express lane," or preferred status on the assembly line, for high-profit orders.

Smokestack industries are even using buffed-up CRM systems to justify higher prices for low-profit orders. Sophisticated tools that analyze customer profitability can highlight so-called free riders, or customers and products that generate a disproportionately small return, says Steve Banker, an analyst at Automation Research Corp. in Dedham, Mass.

CRM analysis sometimes yields surprises and upsets long-held planning assumptions, Banker notes. For example, a high-margin account could lose its preferred status if analysis reveals that the customer has costly handling or service requirements. Likewise, custom features or unforgiving delivery

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Manufacturers like U.S. Steel are reaping benefits from CRM software, such as increased cash flow, better service for highly profitable customers and more accurate forecasting.

deadlines that disrupt production or shipping schedules might diminish the appeal and profitability of a once highly regarded customer.

The payoff from exploiting this kind of data can be huge: U.S. Steel Corp. officials say the company increased its annual cash flow by several million dollars soon after installing analytic CRM software from San Rafael, Calif.-based Maxager Technology Inc.

In fact, CRM initiatives at some industrial companies — including DaimlerChrysler AG, Ondeo Nalco Co. and Taiwan Semiconductor Manufacturing Co. — produce such important insights that they're considered too proprietary to discuss publicly, for fear of tipping off competitors.

Invensys PLC, a conglomerate that makes a full range of industrial controls, has begun using CRM data about customer ordering patterns to better forecast production and fine-tune scheduling at its factories, says global best practices program manager Deb Kumpf, who works at the company's U.S. headquarters in Foxboro, Mass.

"A major benefit has been to better forecast what our business is going to be and [then] transfer that information to production," Kumpf says.

Invensys uses heavily customized Baan CRM software, which is based on applications Baan acquired when it purchased CRM vendor Aurum in May 1997. (The selection isn't too surprising: Invensys purchased Baan in August 2000 and then sold it in June of this year to SSA Global Technologies Inc.)

Invensys factories use CRM data to more accurately forecast needs for raw materials six months out. Forecasts are updated either weekly or monthly. Precision is important because Invensys' production is done on a just-in-time basis; work is scheduled to coincide with customer-specified delivery dates, and the company holds minimal finished-goods inventory.

Invensys also uses CRM to make sure it evaluates the profitability and risks associated with major contract bids, to avoid too many low-profit or high-risk bids. "The goal is to make the sales process more consistent," Kumpf says.

And, like other CRM adopters, Invensys uses the system to identify cross-selling opportunities. For example, a factory controls customer would be a candidate for a maintenance contract. It would represent a low risk for Invensys because the vendor would be familiar with the reliability of the customer's system, since it built much of the hardware and provided the control software.

"We're trying to leverage actual sales data to sell as much and as many different Invensys products as possible," Kumpf explains. "It's really opportunity management."

'Contracting Smarter'

U.S. Steel's activity-based costing software measures the cash generated by each product, customer and market, which can help to maximize cash flow, says Vas Shapkaroff, a financial analysis manager at one of the company's primary production facilities, in Gary, Ind. U.S. Steel uses this data to try to convince production managers and its 150-member sales force to focus on maximizing cash generation and, ultimately, profit, not simply revenue.

In fact, U.S. Steel now is "contracting smarter" by accepting only short-term orders that take three to six months for low-profit products, Shapkaroff said during a recent presentation in Boston. This frees production capacity for higher-return business, should it be needed.

Companies can also share the cost-based analysis with a less-profitable customer and give that customer a chance to modify the product design or production requirements to cut costs — or face higher prices. Often, even modest design changes will dramatically cut costs and improve profitability.

Another option is to ask the high-cost customer to accept a product at another, perhaps less-specific time when demand is lower and production capacity is available, Automation Research's Banker says.

This sort of customer profitability analysis is all the rage in the financial services industry, according to recent reports by Gartner Inc., but it's happening — quietly — in the Rust Belt, too. **43064**

Breskin is a freelancer writer in Great Neck, N.Y.

It All Begins With Data

A CRM system succeeds or fails based on whether it's readily supplied with high-quality data. At **Baxa Corp.**, an Englewood, Colo.-based maker of machines used in hospital pharmacies, a CRM project stalled because of data integration issues. "Our key problem was recognizing the fact that data about our customers were in many different databases," says Marian Robinson, Baxa's vice president of marketing.

Now the company hopes to jumpstart the CRM project by using middleware that links disparate data sources together, thus laying the right groundwork for a CRM analytics system it plans to purchase in the near future.

Robinson says the key goal for Baxa will be to use CRM to bolster sales or generate more profitable sales, not to simply automate or organize sales data and marketing efforts. The latter tasks can be handled by cheaper sales force automation software.

– Ira Breskin

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Unintended BIAS

Research shows that well-meaning managers aren't quite as unbiased and ethical as they think they are.

As an IT manager, you may not be as ethical as you think you are, says **Mahzarin R. Banaji,** *a professor of social ethics at Harvard University. In the December issue of* Harvard Business Review, *she and co-authors Max H. Bazerman and Dolly Chugh write that most managers are burdened with unconscious biases that often result in unintentionally unethical decisions. Banaji discussed these biases with Kathleen Melymuka and offered suggestions for minimizing their impact.*

You say most managers aren't as ethical as they think they are. Why not? Most people are not as ethical as they think they are because there are constraints on ethics that are not visible to the conscious mind, and even if they are, may not be easily controlled. All behavior, including behavior that has ethical implications, can be guided by thoughts and feelings that reside in unconscious form. Managers are no different, except that their attitudes and behavior have greater impact on others because of their role.

You talk about a number of sources of unintentionally unethical decision-making. Let's start with implicit prejudice. Can you give me an example in an IT setting? An implicit bias that may flourish in an IT setting may concern gender. If the association is that men are better at IT than women are, that may lead to men being selected for such positions more often than women, being given positions of higher responsibility and retained with greater confidence.

Yet you say implicit prejudice is rooted in the fundamental mechanics of thought. Can you explain? I refer to the type of bias we study as "ordinary prejudice" to distinguish it from conscious bias. It's ordinary in two ways. First, prejudice — seemingly a thing of the heart — is rooted in the fundamental mental mechanisms of perceiving, categorizing and remembering. To categorize, for example, is a basic skill without which we could not tell apart things that belong to different families — say apples and oranges. To be able to do this is central to thinking. And this mechanism is involved in seeing that people belong to different social groups — male and female, young and old, rich and poor, etc. It is in this sense that I say that prejudice has its origins or roots in the ordinary mechanics of thought. The second sense in which I might use the term *ordinary* is related. If [implicit prejudice] is rooted in the fundamental mechanics of thought, then it should be visible in all of us, not just a minority that may also be consciously biased.

Another source of bad decisions is in-group favoritism. What's wrong with putting in a good word for a friend? It's not that putting in a good word for a friend is wrong; it's the simultaneous lack of putting in a good word for others that makes the playing field unequal. It's the relatively greater access to economic and social benefits that accrue from unequal in-group favoritism that makes in-group favoritism problematic. If this attribute of being recommended were equally distributed such that all people equally got recommended by all others, we would have nothing to say here. It is because this benefit of being recommended is very much a function of where in society one sits that the simple act of recommending becomes discriminatory.

You also say people subconsciously give themselves too much credit. What's the danger of that in an IT setting? To the extent that much of IT work is collaborative, i.e., teams of people working together, taking more credit for work than is correct can cause [other team members to feel] disaffection and a sense of being unrecognized.

Finally, there's conflict of interest. That seems pretty unethical. How can it be unintentional? We are not speaking about intentional conflict of interest, that is, where people explicitly use the power they have in one context to gain favor in another. We are instead concerned about conflict of interest that may occur more subtly, for example, where a person stands to gain because of the more distant affiliations that play a role in who does favors for whom. Here, identifying situations that may lead to conflict of interest, even though they are "required" to be treated that way, is the progressive way to think.

How can an IT manager deal with these ethical lapses if he's not even conscious of them? Act affirmatively [to combat discrimination], not because the group has been wronged in the past, but because the harm from implicit bias is a thing of the present. We also say some more specific things about shaping one's conscious attitudes — that can trickle down to the implicit level with practice — and shaping the environment.

Can you explain and give me some advice on the strategy of shaping an IT environment? A diverse workforce does this in the most obvious way. It allows daily associations of good and bad to be made to many different types of people, blurring the simple association of only one type of association with a group. If Firm A has 20 Asian women and Firm B has two, the employees of Firm A have a higher likelihood of stereotypes of Asian women being disconfirmed.

Ultimately, you say, "vigilance even more than intention is a defining characteristic of the ethical manager." What do you mean by that? Good intentions don't always protect us. Vigilance is an effective way to begin the process of change. **43087**

Melymuka is a Computerworld *contributing writer. She can be contacted at kmelymuka@yahoo.com.*

This is the latest in a series of monthly discussions with Harvard Business Review authors on topics of interest to IT managers.

Subtle Sources of Bias

Even the most conscientious IT manager may be subject to unconscious biases, but being aware of them is the first step toward overcoming them. Here are some sources of unintentionally unethical decisions:

- **Implicit prejudice:** Bias that emerges from unconscious beliefs
- **In-group favoritism:** Bias that favors your group
- **Overclaiming credit:** Bias that favors you
- **Conflict of interest:** Bias that favors those who can benefit you

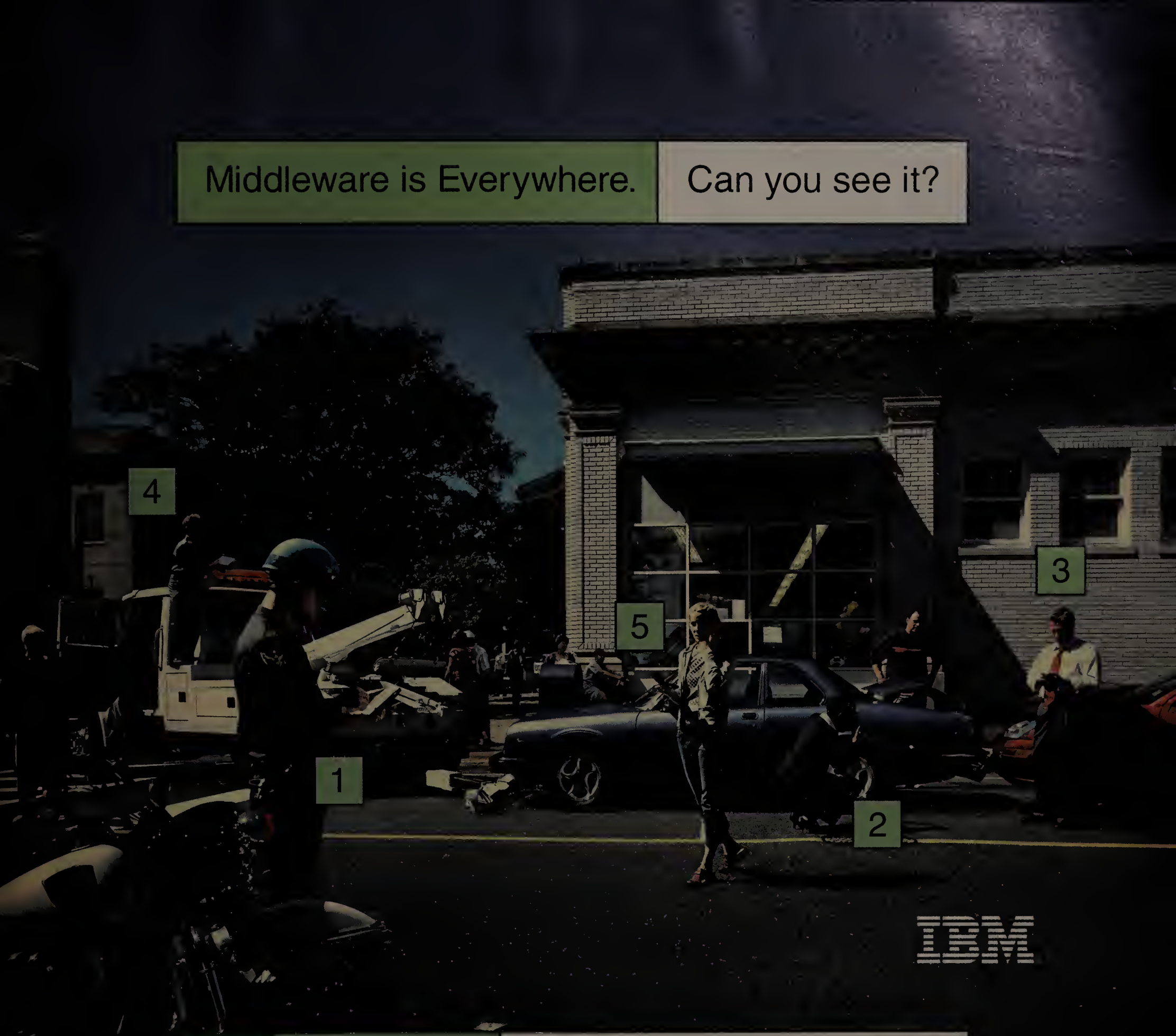
Evaluate Your Ethics

Mahzarin R. Banaji and her co-authors say that implicit, unintentional bias is all around us. The Implicit Association Test has been designed by researchers to measure this unconscious bias by asking test-takers to make split-second associations between words with positive or negative connotations and images of different types of people. More than 2.5 million people have taken the test, many online. Among the findings:

75% of test-takers favor young, rich and white people over old, poor and nonwhite people.

- Those who show bias on tests are more likely to act that way in face-to-face interactions and decisions.
- The desire not to be biased doesn't eliminate bias.

You can begin to deal with your own hidden biases by discovering them at ***www.implicit.harvard.edu*** **and** ***www.tolerance.org/hidden_bias.***



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BRIEFS

IT Budgets to Stay Tight in 2004

"Doing more with less" continues to be a strong IT strategy among CIOs for next year, according to a Merrill Lynch & Co. report published this month. A survey of 100 CIOs in the U.S. and Europe shows that, on average, budgets are being reviewed quarterly to retain some spending flexibility. Other survey highlights include the following:

- Demand for outsourcing is strong, and 70% of CIOs are satisfied with their offshore experiences.
- CIOs are more likely to hold back software spending because they're skeptical of vendors' claims than because of fear that the software will become shelfware.
- Spending on storage will increase, with EMC Corp. and IBM gaining the most market share.
- Fewer than 10% of CIOs have hired IBM to transform processes using its e-business on demand, even though about 33% say they have talked with IBM about the new technology.

Eli Lilly Promotes IT Executives

Roy Dunbar, CIO at Eli Lilly and Co., has been promoted to president of intercontinental operations. He joined Indianapolis-based Lilly in 1990 and has held various management positions. Mike Heim, who has been Lilly's chief technology officer since 2000, will take Dunbar's place as CIO. Heim started at Lilly as a systems analyst and has held key IT positions supporting R&D, manufacturing, sales and marketing.

Gartner to Cut 200

Gartner Inc. plans to cut about 200 of its 3,800 global workforce in areas of consulting that the research and advisory firm sees as lagging. In turn, Gartner plans to hire 50 people for positions in outsourcing, IT and federal government operations. The company will take a $28 million to $32 million charge related to the layoffs in the fourth and first quarters. The company's total revenue in 2002 was $888 million.

BARBARA GOMOLSKI

Taming the Wild, Wild West

DURING THE PAST FEW YEARS, the economic downturn has forced IT departments to look closely at costs and efficiency. Now, the economic recovery is casting another spotlight on IT, and this one is focused on prioritizing IT investments. As organizations slowly boost their investments in new applications, it's clear that many companies need to reconsider the way they set IT priorities. Simply put, it's still the Wild, Wild West in many organizations when it comes to allocating IT resources.

Most companies have already learned the hard way that the IT organization shouldn't — by itself — determine which new IT initiatives get tabled and which get started. However, there's still a lot of confusion about how IT priorities should be set, who gets to vote and how those votes should be tallied. This issue will become even more visible as companies begin to increase their discretionary IT investments in the coming year.

A lot of organizations have steering committees that include C-level executives. However, these groups are really in a position to weigh only corporatewide IT initiatives, and even a highly functioning IT steering committee can't bear the total burden of prioritizing all IT investments.

There is no right or wrong way to determine where to put new IT dollars. Sometimes IT priorities are driven by technology life cycles and business developments. For example, if an unreliable legacy system is costing the company millions, chances are it'll be a top candidate for replacement. Or, if your company buys a competitor, you can bet that much of your company's discretionary IT spending will be tied up in the effort to integrate systems.

It gets trickier, however, when a company is chugging along with no obvious IT priorities. In this case (and particularly after several years of little or no investment in new IT initiatives), business units will come up with creative ways to consume IT dollars. Indeed, many companies will face a flood of new IT proposals in 2004, as IT-starved business managers seek to meet their objectives using technology. So, if it comes down to enhancing the CRM system or Web-enabling the supply chain, which do you do?

IT priorities vary from company to company, of course, but best practices for choosing them are more consistent across businesses. Firms that are good at picking IT priorities play by the following ground rules:

- **Acknowledge that the IT organization, the business units and the finance department must all be involved in determining IT priorities.** IT investment decisions can't be thoroughly weighed unless all three parties are represented, because each group brings unique knowledge to the decision-making process. The finance folks are in the best position to weigh the financial assumptions in the project plans. The business unit heads are the most familiar with the business processes and how the application of IT can improve those processes. IT, of course, is in the best position to judge the feasibility of using IT to accomplish the business goal.
- **Evaluate IT priorities using a standard set of criteria.** Whether you choose net present value, return on investment or some other financial payback calculation, do it consistently across all proposed projects. Continue the standardization by weighing IT priorities against a common set of business objectives.
- **Recognize that tools won't fix bad processes.** There's a hot class of software, called application portfolio management, that can automate the tracking of IT priorities. While many of these packages have rich features and good underlying methodologies, the tools won't cure bad decision-making processes. Put another way, if your company is dysfunctional when it comes to setting IT priorities, an application portfolio management tool won't fix that.
- **Understand that there will always be exceptions to the rule.** In spite of companies' best efforts to come up with an equitable and logical way to prioritize IT investments, the world remains an unfair place. Certain groups and key individuals will carry more clout and will swoop in and hijack IT resources, even if their projects aren't first on the list of corporate IT priorities. That's never going to change. The goal is to make that kind of situation the exception and not the rule. **42986**

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Programmer
4D software application development by using OpenGL, VB, VC++, Java, Java Swing, FORTRAN, C, OOA/OOD, OO Programming, UML, Rational Rose, Database programming, Access, SQL, GUI design, GIS, Windows and Unix system. M.S. in CS or rel. & 2 yrs. of exp. in above pos. or rel. with abil. to use 3D plant design application, OpenGL, VB, VC++, Java, Java Swing, FORTRAN, C, OOA/OOD, OO Programming, UML, Rational Rose, Database programming, SQL, Access, GUI design, Visual SourceSafe, GIS, Installshield Prof., Installscript, Primavera Suretrak, VMware Workstation, Windows and Unix system. 40.0 hr/wk. 9-5. Send resume to: Amadeus Burger, Pres., Construction Systems Associates, Inc., 425 Franklin Road, Ste. 520, Marietta, GA 30067

Corpus has multiple openings for IT professionals. Following skills preferred: Oracle, SQL, PL/SQL, COBOL, C/C++, VB, SAP, Java, XML, ERP, ASP, NT, XSL. Minimum BS degree. Traveling is required for some positions. Please send resumes to resumes@corpusInc.com. EOE.

Argent LLC is looking for programmer/system analyst, software/project engineers. Duties include software & system application design. Skills in C/C++, Java, PL/SQL, Oracle are plus. Travel required for some positions. Degree is a must. Contact achauhan@argentinfotech.com. EOE.

PROGRAMMER ANALYSTS req'd for Naperville,IL office. Develop software applications using C, C++, VB, Delphi, ASP, XML, UML, Coolgen, Interwoven, Oracle, PL/SQL, Developer 2000 & Designer 2000. Bachelors req'd In Computers, Engineering, Math or related field of study +1 yr of related exp. 40 hrs/wk. Must have legal authority to work permanently in the U.S. Send resume to HR Manager, Sapphire Technology Solutions, Inc., 2727 Walsh Av. Ste # 207, Santa Clara, CA-95051

Software Developer I - Business Tier: Perform product design, bug verification and beta support in a J2EE environment using Java, JDBC, EJB, RMI, SQL and UML. Develop business components using design patterns. Conduct systems analysis and product development throughout the full development life cycle. B.S. in CS, Information Science, EE or related. Must have the ability to use Java, JDBC, EJB, RMI, SQL, UML and design patterns. M.S. accepted in lieu of B.S. 40 hrs/week, 9am-5pm Positions available: multiple. Resume to: Mr. Vichael Fleming, Vice President of Engineering, EPL Inc., 22 Inverness Center Parkway, Suite 400, Birmingham, AL 35242. jobs@epl.net

JAVA Developer: Implement and document J2EE software using knowledge of EJB, JMS, JNDI, JTA and SOAP. Resolve issues with specs and integrate items using knowledge of operating systems: AIX 5.1, Solaris 8, Windows 2000. Languages: Java (JDK1.2 and above), XML, SQL. Database: Oracle 9i. Modeling tools: Rational Rose Enterprise Edition 7.5, UniysysRoseXML Tools. Appservers/Webservers: Weblogic 6.1sp5 and above, Websphere 5.0, Tomcat 4.0.6. Version controls PVCS, CVS. XMLParcser: SAX, JDOM, Xerces. Debugging tools: EzSQL. XMLTools: XmlSpy 4.0. Master's plus exp. required. Competitive salary. Resumes to Worksuite LLC, (Emily), 20405 St. Hwy 249, #600, Houston, TX 77070.

Programmer
Maintenance of databases: Pervasive Btrieve and PervasiveSQL v8!, Oracle 9i. JDBC, ODBC, Oracle's OCI and OCCI, ADO/OLE DB and PDAC, SAG CLI Connectivity. B.S. in CS, Data Proc. or rel. w/abil. to use FreeBSD releases 4.x and 5.x. Mandrake Linux v7.1, ANSI Common LISP, C/C++ using Yacc and Lex utilities. Perl, ActivePerl, PHP, Rogue Wave Tools.h++. Resume A-Soft Scientific, P.O. Box 1270, Roswell, GA 30077.

PROJECT MANAGER sought by NJ-based Int'l Logistics & Freight F/wdg Co. for job loc in Hamden, CT. Req'd to dvlp & refine plans in the dsgn, implemention & integration of KN/USCO architecture & dvlpmt of software progs. for bus. transactions. Must have Bach Deg in Comp Sci (or equiv) and 3 yrs exp in job off'd. Must be exp'd in RUP methodologies, J2EE & Rosetta Net Standards. Send resumes to: Director, Arch & Planning, USCO Logistics, Inc., One Hamden Center, 2319 Whitney Ave., Hamden, CT 06518.

Software Developer w/ Bachelors in Computer Science/ Engineering and 2 years exp. wanted in Houston, TX. Respond to: hr@thesystemshop.com

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Senior Business Analyst/ Programmer Assist health organizations develop the steps to comply with the HIPAA, assess the current environment, provide recommendations for achieving HIPAA compliance within the required time frames, and provide remediation assistance and training. Provide leadership and direction to project teams and client staff regarding HIPAA Privacy and Security. - 2 yr experience in using eXchange, eGate, eInsight for implementing EDI transaction/Experience in using system development life cycle methodology approach/ Experience with mainframe platform (COBOL, CICS, ADABAS, NATURAL VSAM, DB2 and JCL). Base Salary $65000. Send application and resume to: LB Infosys. 1300 Edgewater Dr #306.Pierre, SD 57501.

IT Service Coordinator wanted to develop, design, analyze, and modify web-based and application software. Provide routine solutions and analyses. Plan web-site development and establish and maintain web server. Programming internal application and related IT strategy planning. BS in Computer Science and related experience required. Send resume to HR Dept., Mississippi Home Corporation, 735 Riverside Drive, Jackson. MS 39202.

Software Engineers: Analyze, design, develop & deploy apps. in SAP R/3 Modules (MM, SD, WM, PP, PM, FICO & HR) and related technologies (ABAP/4, ALE, EDI, IDOCS, ITS), SAP BW, Oracle, SQL Server and Visual Basic. Send resume to HR, InfoWeb Systems, Inc., 3435 Asbury Road, Suite 175, Dubuque, IA 52002. EOE.

Falcon Farms, a fresh cut flower importer seeks: Computer Programmer: Develop/implement applications for long-term decision making, optimum productivity, train users. BS in Comp. Sc./Syst. Engr w/rel. exp. Resume to: Ref# 202, HR., 1401 NW 78 Av, Miami, FL 33126

Software Developer I - Presentation Tier: Perform GUI design, product development and defect resolution in a J2EE environment using Java, Struts, Taglibs, JDBC, SQL and XML. Develop web components using MVC architecture. Participate as a project team member throughout the full software development life cycle. B.S. in CS, Information Science, EE or related. Must have the ability to use Java, Struts, Taglibs, JDBC, SQL and XML and MVC architecture. M.S accepted in lieu of B.S. 40 hrs/week, 9am-5pm Positions available: multiple. Resume to: Mr. Vichael Fleming, Vice President of Engineering, EPL Inc., 22 Inverness Center Parkway, Suite 400, Birmingham, AL 35242. jobs@epl.net

Seeking qualified applicants for the following positions in Collierville, TN: Senior Business Application Analyst. Act as liaison between technical developers and users/customers. Requirements: Bachelor's degree or equivalent* in computer science, business, math, statistics or related field plus 5 years of experience in analyzing business systems and developing technical automated solutions. Experience with Java or C++; development of n-tiered object-oriented applications; and either Cobol, DB2 or CICS also required. *Master's degree in appropriate field will offset 2 years of general experience. Submit resumes to Sibi George, FedEx Corporate Services, 1900 Summit Tower Blvd., Suite 1400, Orlando, FL 32810. EOE M/F/D/V.

PROGRAMMER ANALYSTS for Hickory Hills, IL office. Design & Develop software applications using Oracle, XML, UML, C++, Sybase, Interwoven, Coolgen, ClearCase, ClearQuest, PVCS, UNIX. Bachelors req'd in Computers, Engineering, Math or related field of study +1 yr of related exp. 40 hrs/wk. Must have legal authority to work permanently in the U.S. Send resume to HR Manager, Compro Consulting Group, Inc., 8619 W 95th St., Hickory Hills, IL 60457.

Paradigm Infotech is looking for programmer/system analysts, s/w engineers. Candidate must have BS with at least one-year IT experience. Good skills in C/C++, Java, Oracle, WebLogic, VB, HTML, ERP are plus. Traveling is required. Apply jobs@paradigminfotech.com. EOE

Logic Solutions looks for IT professionals. Applicants must have MS/BS with minimum 1-yr exp. Duties include administer & set up WebSphere, IBM HTTP server, Apache, iPlanet and Tomcat web servers for commercial web sites on Windows, Solaris. Contact hr@logiclink.com

Management Analyst with experience to research and develop short as well as long term plans and business strategies for software development to include outsourcing of software development services and business processes. Research market conditions and forecast trends for SAP and Oracle ERP solutions and services. Working Knowledge of COGNOS and Microsoft Project is preferred. Position requires Bachelor's degree in Management or related field and atleast 3-5 years related work experience. Send resume to Rashi Information Services Inc, 214 Senate Avenue, Camp Hill, PA 17011. Attn Ravi Jaganmohan.

S/W Engineers to design, develop/maintain web and CRM appls using Java, VB, Oracle, Dev 2000, SQL, JSP, Clarify Suite of Products, Weblogic on Windows & UNIX OS; provide training & user support for the systems and related appln internally & to clients; test, debug and modify existing software. Require: MS or foreign equiv in CS/Engineering(any branch) & 1 yr exp. in IT. F/T. High Salary. Travel involved. Resumes to HR, ABZ Consulting, Inc., 2600 Century Prkwy, Ste 100, Atlanta, GA 30345.

Sr Systems Analysts to manage projects to design, develop, test, implement, maintain and support business appls using Oracle Financial and Manuf appls, Oracle, SQL, Dev 2000 in Windows/UNIX envir; plan, direct, coordinate activities of projects on-time and on-budget; analyze business reqs of clients and re-engineer business appls. Require: Master's in CS/Business and 1 yr exp in IT. Travel involved. F/T position. Competitive salary. Resume to: HR, Quest America, Inc., 211 East Ontario Street, Suite 1800, Chicago, IL 60611

BUSINESS ANALYST. Keller, Texas. Require Bachelor's degree in a technical discipline such as engineering, physics or math & MBA, data modeling and data analysis experience, & graduate course work/project or previous work experience using statistics software applications. Send resume to Coming Cable Systems, LLC, Attn: Human Resources Manager, 9275 Denton Highway, Keller, Texas 76248. NO PHONE CALLS PLEASE.

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Legal Information Services co. with head offices in NYC has opening for senior software engineer with exp in VB, OOAD methodology, COM, UML, DHTML, XML, ASP, C++/Java, IIS, ADO, C#, .NET, Oracle, Crystal Reports and SQL Server. Analyze, design, develop, test & support web-based e-commerce applications for MS Windows. Resumes to HR Dept., CT Corporation Systems, 111 Eighth Ave, NY, NY 10011.

SBI is looking for the following positions for its offices in Houston, TX, San Francisco, CA, Warren, NJ, Salt Lake City, UT and Portland, OR: Art Director, Web Designer, Programmer Analysts, Technical Architects, Technical Consultants, Business Strategists, Systems Analysts, Software Engineers, Software Developers, SAP Consultant, resumes by email or fax only to HR, SBI 2825 East Cottonwood Parkway, Suite 480, Salt Lake City, UT 84121: careers@sbiandcompany.com; Fax (801) 733-3201.

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To provide technical/user support for computer sys. within assigned dept.; analyzes, writes and maintain web-based database apps. to increase operating efficiency with ASP, UML, Stored Procedures, Content Mgmt and SharePoint server skills. Req.M.S. degree in CS, CIS or a related field, proficiency in ASP.net, Oralce PL/SOL & WHS. 40hrs/wk. Send resume to HR, 6000 N. Terminal PKWY, Atrium, 4th Floor, Atlanta, GA, 30320. Fax: (404) 305-7950.

Prog/Analysts to analyze, design, test client server/web appls with OOAD methodologies using Java, VB, EJB, Servlets, JScript, XML, HTML, Oracle, SQL, JDBC, Access, Weblogic, etc In Windows OS; analyze business processes, determine reqs, generate reports; perform onsite/offsite maintenance; document, debug, test, perform code optimization. Require: BS or foreign equiv. In CS/Engg (any branch) & 2yrs exp. in IT. Competitive salary. Travel involved. F/T. Resume to: HR, Bahwan Cybertek Technologies, Inc., 209 West Central Street, Ste 312, Natick, MA 01760.

Seeking qualified applications for the following positions in Des Moines, Iowa and Dallas, TX: Senior Programmer Analyst. Analyze, design, test, datawarehousing software applns using Cognos, Teradata, Informatica, DB2, JAVA, HTML, on UNIX, MVS, Windows OS; gather, document reqs from user community: test, trouble shoot project applns code according to system objectives. Requires: BS or foreign equiv. in CS/Engg.(any branch) & 3 years of IT. Competitive salary. F/T. Travel Involved. Resume to HR, ITCell Inc, 14200 Midaway Rd, # 135, Dallas, TX 75038. EOE M/F/D/V.

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Element Manager Software Developers needed to design and implement Network Management System software for Cisco devices using Cisco Element Management Framework for communications customers. Develop system software using C++, Unix and Object Oriented design and development methodologies. Design management system software by analyzing Management Information Base(MIB). Develop Network Management System software using Simple Network Management Protocol (SNMP) and other protocols. Provide technical support for customers and serve as technical resource for junior engineers. Requires a Bachelor's degree in Computer Science, Engineering or related field and three years experience as a Software Engineer, Programmer or Analyst. Experience must include one year of experience developing Element Manager Software using Cisco Element Manager Framework. To apply please send resume to Angie Lebitz, Cyberwerx, Inc. 13000 Weston Parkway, Suite 109, Cary, NC 27513.

Pool Cover manufacturing company requires Programmer/Analyst: Duties: Design, develop, test, debug, and implement in-house software applications in the areas of Production management, Accounting and Sales. Thorough Oracle RDBMS experience using FoxPro, Visual FoxPro, Windows Script Hosting, VBA, and SOL. Experience creating COM objects and connections to AutoCad. Create Web based applications using Visual FoxPro. Requirements: A Bachelors Degree, in Math, or Sci, or Comp. Sci. ,or, Engg., (or equivalent), and two years experience in the job offered or related occupation. 40hrs/wk, M-F, 8:00AM to 5:00PM. Job to be performed in Trenton, NJ. Send resumes to: Operations Manager, Merlin Industries, Inc., 70 Culbertson Avenue, P.O. Box 570, Trenton, NJ 08604.

Software Engineer: Provide business intelligence reporting, database, ETL (Extract Transformation & Loading), data warehouse & Java expertise to develop cutting-edge, J2EE enterprise software; perform complex data warehouse design & programming tasks; create technical specification; perform design process & code review; perform maintenance & enhancement of software components & unit testing. Reqs: B.S. In Comp Sci, Info Sys or a related field. 2 yrs exp in job offered. Prof in UNIX, Windows NT/2K, Informatica, Reporting tools, Oracle, SOL, HTML, DHTML, Java, J2EE, JavaScript, JSP, Servlets, JDBC, Source Management, Star Schema design & 00 methodologies. 40hrs/wk. Send res. to box V-1, P.O. Box 17182, Phila., PA 19105.

Database Admr. (4 openings): Analyze, design software & hardware requirements. Install, adm. Oracle databases in HA cluster. Support OPS, Adm. OAS. Database recovery, RMAN backup, Datastage, ERWIN, Reportwriter, Forms, Replication Mgr., Pro*C, Shell Scripting. Use Solaris, HP-UX, AIX, DEC-Alpha, NT. Req. Bachelor's or its foreign degree equiv. in CS, Mathematics or other Engg or science field + 1 yr exp. in job offered. 40 hr/wk Resume to: HR Mgr, Omnisoft, Inc., 1265 Compass Pointe Crossing, Alpharetta, GA 30005

FT Project Manager. Multiple positions. Responsibilities include: Manage the design, development and implementation of multi-tier client/server, Internet/Intranet based systems, multi-user, re-engineering applications for insurance companies utilizing Legacy Mainframe Insurance Applications including Vantage-One, ACES, DSS, RPS and PREMIER systems; manage systems analysts designing systems with tools including DADS, SAVRS, SAR, APC, PanApt, CompareX, Spufi, Dclgen, OMF, Dispatch and RDS, and Internet-based applications with HTML, JAVA, JDBC, JavaScript, JSP, and XSLT; manage user acceptance tests and user training. Must be willing to travel to client sites Monday-Friday. Must have a Master's Degree or foreign or educational equivalent in Computer Science, Engineering or a related field and three years of experience as a systems analyst or in a related occupation, or a Bachelor's Degree or foreign or educational equivalent in Computer Science, Engineering or a related field and five years of progressive experience as a systems analyst or in a related occupation. If interested, submit resume in duplicate to:

Ms. Sandy Pruitt
NIIT (USA), Inc.
1050 Crown Pointe Parkway, Suite 500
Atlanta, GA 30338

Computer. Moneyline Telerate a leading financial information services firm seeks VP/Global Trading Systems for NYC office to direct /develop software strategies for management of data distribution systems. Rpts directly to CTO. Req'd BA in CSc/EE/ related area, 3 yrs exp. in building global scalable real time equity and/or fixed income systems, w/full life cycle dvlpmnt from inception to delivery, initiating devising, monitoring, reviewing strategic plans, & performing gap analysis to ensure that dvlpmnt projects meet long-range financial goals. 7 years exp req'd w/IBM MQ Series, Tibco TIB & Rendezvous, Hawk System, Triarch, SmartSocket, IP multicast, STAMP/FIX/JMS & mathematical optimization algorithms, data compression algorithms, data encryption & security on distributed systems; in overseeing through intermediate management the design & creation of detailed software system specifications; & in researching/implementing best practices in dvlpmnt strategies. No search firms. Send e-mail w/resume & comp rqmts to recruiting@moneyline.com

Riversand Technologies, Inc., specializes in providing solutions in the areas of Product Data Management and services, custom product development and B2B integrations. We are currently looking for the following:

Systems Analysts: Analyze, design, develop, test, and implement B2B/Enterprise Application Integration packages and Distributed Applications. Used UML, C#, VB.NET, ASP.NET, SQL Server, XML WebServices, SAP Modules and Data Warehousing tools. Involved in Database Development by Writing and Implementing Packages, Stored Procedures, Triggers and Functions using PL/SOL. Need Bachelor's degree in Computers or Engineering or a related field. Need 2 years of experience.

Send Resume to: HR Manager, Riversand Technologies, Inc, 13405, NW Freeway, Suite 228, Houston, TX 77070 or via e-mail at HR@Riversand.com

Client-Server Developer. Requirements: Expenence with Federal Vehicle Identification Software and Requirements, Microsoft MTS, Visual Interdev, IIS, Great Plains eEnterprise 5.0+, andCitrix Winframe/Metaframe; Ability to prontize and schedule deliverables, and to communicate clearly in English, orally and in writing, with co-workers and outside resources; 3 years of Client-ServerApplication Development in MS WinNT/2000/SOL Server Environment. The job duties are. Client-Server application development, testing, implementation and maintenance of a custom order entry/vehicle registration application in a Microsoft Windows NT/2000/SOL Server environment. Work closely with management to review development strategy and project plans, with users to identify and prioritize bug fixes and application enhancements, and with Database Administrator to optimize application performance. Maintain application version control. Requires B.S. in Computer Science or Engineering, or equivalent, and a minimum of 5 years experience in Software Application Development. 40 hours per week at $95,222 per year. Please send 2 copies of resume to Case #200203118, Labor Exchange Office, 19 Staniford St, 1st Floor, Boston, MA 02114.

NYFIX, Inc. seeks Software Engineers w/MS in Comp Sci or equiv & 3yrs exp

* Dsgn, dvlp & test real-time financial trading systems In C++ cross-platform envrmt. Relational theory, ACID systems, db schemas, stored proc., queries & triggers in Oracle & Sybase. Exp. supporting live production systems, OOA/OOD, Win, Solaris, Boost, STLPort; msg & storage systems, XML, UML, crypt., code optmise., algoritms & dsgn patterns. Equities exp. Worksite NYC. (Job# 3019)

* Dsgn & dvlp proprietary applics: Real-time complex multi-tier applic in C++ on Windows NT/CE & Sun Solaris. Dsgn, implmt & integrate GUI. C, C++, Visual C++, MFC, MOSeries, TCP/IP, Socket & Multi-threaded programming, Shell Scripting, Perl, UML, Rational Rose, Oracle, Sybase, Windows & Pocket PC envrmt. MS Comp Sci or equiv. Worksite Stamford, CT. (Job# 3018)

Mail R & CL referencing Job # to NYFIX, Inc. HR Dept, 333 Ludlow Street, Stamford, CT 06902.

Programmer Analyst
Responsible for Analysis, Design, Development and Implementation of various systems using CRM Configuration tools, Siebel, Siebel VB, Siebel Tools, Clearbasic, and UIEditor. Develop business processes in Siebel 2000 eBusiness applications and Clarify eBusiness applications. Very good functional knowledge of Call Center and Billing Solutions process needed. Bachelors Degree in Computer Science or relevant field with 4 Years of work experience in related occupation. 49 Hrs./Week., $70,000/annum. Must be willing to relocate to various unanticipated work locations throughout the USA every 4 to 10 months, employer paid. Must have proof of legal authority to work in the United States. Send your resumes to the Iowa Workforce Center, 215 Watson Powell Jr. Way, #100, Des Moines, Iowa 50309-1727. Please refer to Job Order IA1101810. Employer paid advertisement.

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Otis
A United Technologies Company

HRIS Analyst

Otis Elevator Company has an immediate opening in its Farmington, Connecticut office for a HRIS Analyst.

Assists in the global implementation and training on new HRIS systems and upgraded systems, in identifying ongoing program enhancements and/or additional system functionality, and with the precise and effective communication of system requirements to local and international system developers.

Qualified applicants must possess a bachelor's degree or its equivalent in MIS, Engineering, Business Administration, Human Resources or related field and relevant work experience. Experience to include: Web Applications (ASP, HTML, XML and JavaScript); SQL, Oracle and MS Access; system analysis, design, development and implementation and project management.

Resume and/or cover letter must reflect each requirement above and specify reference code AJHA or it will be rejected.

Forward resume to Caraline Moses, Manager, Human Resources, Otis Elevator Company, 10 Farm Springs Road, Farmington, CT 06032

We are an Equal Opportunity Employer. Visit our Web site at www.otis.com

SENIOR PROGRAMMER/ANALYST to analyze, design, develop, test, implement and maintain application software using C, C++, Java, JDBC, ODBC, Tibco, MQ Series, Oracle, Sybase, Apache XML Parser and Tomcat under UNIX, Linux, SUN Solaris and Windows operating systems. Require: B.S. degree in Computer Science, an Engineering discipline, or a closely related field with 2 yrs of exp in the job offered. Extensive travel on assignments to various client sites within the U.S. is required. Competitive salary offered. Send resume to: Sundeep Chaudhry, Elite Solutions, Inc., 1670 Reserve Way, Ste 203, Decatur, GA 30033; Attn: Job MA.

American Cybersystems, Inc seeks exp'd IT professionals & Network Engineers / Administrators & Public Health Data Analyst / Consultant/ SAS programmers. IT professionals must have B.S C/S or Eng'g (any branch) & exp. using following skill ssets: (a) Informatics PowerMart, ETL Tools, DB2, Teradata, C++, Unix; (b) ETL, Siebel, EIM, Business Objects, SQL Anywhere, Data Junction, Rational ClearQuest, HP- Unix, etc. (c) Public Health Data Analyst / Consultant / SAAS programmer must have B.S./MS Public Health & min. 1 yr. exp. in statistical analysis of health care data / healthcare industry using SAS 8.2, SUDAAN, SPSS, EPI-Info 2000. Please send resumes only to 100 Crescent Center Pkwy, Ste 200, Tucker, GA 30084.

SOFTWARE ENGINEER
Software Engineer needed to serve as Project Manager in the development and maintenance of telecommunications billing applications involving storage, retrieval and display of billing data, and the management and storage of claims, adjustments and credits; perform analysis, coding, design and testing of applications using PL/1, OAM, COBOL, DB2, CICS and IMS. Requires Bachelors degree in Management Information Systems or Computer Science, or will accept Bachelors equivalent based on a combination of education and/or experience as determined by a professional education or experience evaluation service. Also requires one year experience in the job offered or one year experience in software engineering using PL/1, OAM, COBOL and DB2, experience must include project management relating to the development of telecommunications billing applications. Salary $90,500/yr, 40 hrs/wk, 8AM to 5PM, Monday to Friday. To apply, submit two (2) copies of resume to: Case #200203283, Labor Exchange Office, 19 Staniford St, 1st fl., Boston, MA 02114.

Project Engineer

Pitney Bowes Inc. has an opening in its Shelton, Connecticut office for a Project Engineer.

Design test strategy documents, write test cases, hold test case reviews, execute test cases, log defects into the Clear Quest defect tracking tool, follow-up on the defects until resolution, hold defect review meetings, enter test results into the TRA tool and hold test results meetings.

Must possess at least a bachelor's degree or its equivalent in Engineering, Computer Science or a related field and relevant work experience as a Test Engineer - Product Development, including experience with unit, component, integration, functional, reliability, security, performance, stress and load testing, testing of Internet and Intranet applications, testing in a Windows environment using MTS, C++ and Visual Basic, test automation, and System Test organizational tools.

Resume and/or cover letter must reflect each requirement above and specify reference code PE/VP or it will be rejected.

Forward resume to Robbin Drew Elliott, Pitney Bowes Inc., One Elmcroft Road, Stamford, CT 06926-0700.

Web Infrastructure Analyst

CSC, Fortune 500 leader in Newark is currently seeking an experienced professional to administer Web sites/servers, Web application servers, and related utilities in the Extranet and Intranet Web Hosting Environment including: iPlanet, Apache, Bowstreet, JRUN & Tomcat technologies and UNIX Solaris O/S. Requires a BS or equivalent and relevant experience.

CSC offers competitive salaries and excellent benefits. Please forward resumes to: CSC, Attn: **Human Resources, 400 Commerce Drive M/S 1SB6, Newark, DE 19713.** Reference job code **SS031405** in cover letter. EOE M/F/D/V.

CSC

Nastel, Inc. is looking for Database Design Analysts for West Columbia, SC office location. Some duties for the position include designing logical and physical databases for commercial and federal financial, mftg. and human resource application modules; implementing large global database applications with multiple-languages, multi-currency and Oracle versions. Qualified applicants must possess the following: Master's Degree in Computer Information Systems or Manufacturing Mgt. and 3 yrs of exp. as a Database Design Analyst, Systems Analyst or Oracle Database Administrator. Applicants must possess 1 yr of exp. in: 1) Oracle Applications InterConnect (OAI), Oracle Financial Analyzer (OFA), Oracle Portal and Single-Sign-On (SSO) configuration; 2) Designer2000, Discoverer2000 and Developer2000; 3) Citrix MetaFrame deployment; 4) Performance Tuning and Backup/Recovery; and 5) Data modeling using Oracle CASE Methodology. Please send resumes to Computerworld, REF 7668.002.500, Old Conn. Path, Framingham, MA 01701. REF 7668.002.

Database Administrator: OH Ct System seeks Database Administrator to design/setup/support/backup/recovery UNIX systems and Oracle databases; analyze/evaluale/supervise software development; design/ maintain security provisions for apps/DB; analyze/maintain/ install apps/DB software to ensure smooth operation. Master's in Comp. Info Sci and min 6 mos in-job/job related exp is req, including min 3 mos exp w/RDBMS/SQL and UNIX/ Linux CGI programming; Apache admin. Exp may be gained before, during or after degree. Resumes to M. Flanagan, Cleveland Municipal Court, 1200 Ontario St., Cleveland, OH 44113 No calls. EOE.

Vega, a NJ based computer consulting company, is currently staffing for long term stimulating projects throughout the US. We are hiring professionals with any of the following skills:

Unix System Engineer, Biztalk/ .Net Developer, SeeBeyond Developer, VB, Cobol/ DB2, Java/EJB, PowerBuilder, Siebel, AS/400, C++, Oracle. Submit resumes to:

pperanio@vegaconsulting.com

SENIOR PROGRAMMER/ANALYST to analyze, design, develop, test, maintain, implement and support web-based application software using Java, EJB, AWT, JSP, Servlets, JDBC, RMI, XML, XSL, JavaScript, WebLogic, Oracle and SQL Server on Windows platform. Require: Bachelor's degree in Computer Science, an Engineering discipline, or a closely related field with 2 yrs of exp in the job offered or as a Software Engineer or Programmer. Extensive travel on assignment to various client sites within the U.S. is required. Competitive salary offered. Apply by resume to: Ravi Kandimalla, President, Everest Computers Inc., 900 Old Roswell Lakes Parkway, Suite 300, Roswell, GA 30076; Attn: Job SH.

Immediate opportunities for both entry-level and experienced Programmers, Programmer Analysts, Systems Analysts, Software Engineers, DBA's and Software Consultants with three or more of the following skills: Java, Shell Scripts, SAS, PLC, Textra, XML, SQL, DB2, mqPCX, Oracle, PowerBuilder, Rational Rose, Sybase, Perl, PeopleSoft, Crystal Enterprise, Crystal Reports, Teradata & MS Visual Studio. Bachelor's or Master's degree reqd., depending on position. 1yr exp reqd. depending on position We also accept the foreign edu. equiv. of the degree, or the degree equiv. in edu. and exp. Frequent travel and relocation. Send confidential résumé and salary requirements to: HR, Transworld, Inc 1515, Woodfield Road, Ste. 625, Schaumburg, IL, 60173 Visit our website at www.transwld.com.

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CW031215N3

Computer Systems Modeling & Simulation Engineer. Req. Bach. deg. or higher in Comp. Sci., Eng., or related field & 2 yrs exp. in job offered or 2 yrs exp. in routing & application layer protocols. All of exp. must incl. configuring & troubleshooting WAN/LAN technologies, VLANS, Advanced Spanning Tree & Multi-layer switching. Must also have exp. analyzing application behavior on networks using QoS & exp. w/software design & management, scalability, & performance testing of Enterprise Applications. Resp. for planning, designing, optimizing, & implementing comp. systems & applic. performance using routing & applic. layer protocols. Perform modeling & analysis at physical, data, control, & higher order protocol layers to develop high-perf. scalable comp. systems. 40 hrs/wk. Job located in Wash. D.C. Send resume to K. Russ, Resource Consultants, Inc., 2650 Park Tower Dr., Vienna, VA 22180.

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Sr. Programmer Analyst

CSC has a Sr. Programmer Analyst position available in **Pass Christian, MS.** Develop, maintain & debug new applications & interfaces to existing site manufacturing applications utilizing ORACLE DATABASE & MS SQL Server database products. Work on software solutions running on WIN95/NT operating system platforms. Develop & maintain software applications using MS Visual Basic & Developer 2000 programming tools. Use Seagate Crystal Reports software to provide reporting of manufacturing data. Provide manufacturing critical support services during all hours (including off-hours). Requires BS or equivalent & relevant experience. Submit cover letter & resume to **CSC, HR, 400 Commerce Drive M/S 1SB6, Newark, DE 19713. Reference job code PB070105** in cover letter.

CSC

American Information Technology Corp has several openings for Programmer Analyst/Systems Analyst/Software Engineer, System Admn, Database Administrator with at least two years of experience in any of the following skills.

Database Admn: Ingress, Informix, Oracle, Sybase, MS SQL Server, DB2, ADABAS, Essbase, IDMS, IMS/DB
Systems Admn: UNIX (SUN, HP-UX, AIX, LINUX), Windows NT, MVS
Programmer Analysts/ Systems Analysts/Software Engineers: VB, PB, AS/400, RPG/400, Synon, JDEdwards, Progress, Java, J2EE, HTML, C++, VC++, Lotusnotes, CORBA, EDI/Mercator, Gentran, CGI, Perl, PL/SQL, Oracle, Cobol, SAS, JCL, NATURAL, Cognos, Erwin, ETL, ACTA, Sagent, Informatica, Peopleoft, SAP, DW, BO, Coldfusion, TIBCO, .Net, C#, Oracle Financials, Datastage, AbInitio, CRM, Siebel, Actuate, WinRunner, Load Runner, Silk.

Some positions require a Bachelors Degree, others Masters Degree. Equivalent degree and experience is also accepted. Exc. Pay & Benefits. Please indicate the position you are applying. Mail resume to: HR Dept., 3204, Long Prairie Road, Suite E, Flower Mound, Texas - 75022

Project Development Coordinator/Support Specialist - various locations throughout the U.S. - Provide technical assistance to comp system users. Answer questions or resolve comp problems for clients. Provide assistance conceming use of comp hardware & software. Must have B.S. or equiv. in comp science or engineering. Must have 2 yrs exp in job described or 2 yr exp as a comp professional. 2 yrs exp to include 1 yr exp w/performing systems analysis, design and implementation, customizing, quality assurance, and production support. Position is 40 hrs/wk from 8 to 5 w/yrly salary of $64,240. Send resume w/reference to Job Order #WEB 377687 to Manager, Butler County CareerLink, Pullman Commerce Center, 112 Hollywood Drive, Suite 101, Butler, PA 16001-5699.

SOFTWARE SYSTEMS ENGINEER - ADVANCED

Under minimal direction, provide specialized expertise within multiple systems and software disciplines, and provide general knowledge of related disciplines, applications implications and customer areas. Perform in-depth analysis of systems software products including complex problem resolution, design, development and testing. Assist Software Systems Engineers with customization, installation, maintenance, setting of standards and optimizing product performance. Lead the software development life cycle including feature definition, high and low level designs, implementation, unit and system testing for commercial product delivery via coordination and mentoring of specific team resources. Assist in technical development of Software Systems Engineers. Participate in the planning and conversion of new hardware/software products. Take ownership of key customer escalations related to core product defects and work resolution by facilitating team resources and management team. Serve as Team/Feature Lead and coordinate team member(s) on a single core feature area. Position utilizes knowledge and experience in object-oriented design, web technologies, secure networking, collaborative applications, Java, C#, ASP.Net, Java, Microsoft Visual Studio, SQL Server technology, XML, Microsoft .NET platform and web services programming. Requires a Master's degree in Computer Science or Mechanical Engineering and 2 years experience in the job offered or 2 years experience in web-based application development using C#, Java, ASP.Net, Visual Studio, XML, SQL Server technology and web services programming. 40 hours per week; 8AM to 5PM, Monday through Friday. Salary $55,000 per year. Must have proof of legal authority to work in the United States. Send your resume to the Iowa Workforce Center, 122 Kellogg Avenue, Ames, Iowa 50010-0410. Please refer to Job Order IA1101821. Employer paid advertisement.

Software Test Engineer (Fort Worth, TX). Bachelor's degree (or equiv. foreign educ.) in computer science, info. tech. or mathematics & 6 yrs.' exp. in the job offered or 6 yrs.' exp. conceptualizing, writing, & implementing software test methodology & the direct use of software test tools, both of which comply with regulated industry standards. [In lieu of Bachelor's degree, will accept 2 yrs. of university study in comp. sci., info. tech. or mathematics & 2 add'l yrs. of exp. as stated.] Stated exp. must include working with the entire information systems test life cycle* and hands-on testing of multi-tier information systems. Must also have 1 yr.'s exp. managing multi-tier Information systems projects. Conceptualize, write and implement software test methodology & use software test tools to ensure reduction of business & technical costs, & correlation with corporate standards for risk-based compliance. Work on entire information systems test life cycle* (test planning, conduct, analysis, documentation, & reporting, & corrective action tracking and re-testing). 40hrs./wk. 8:00 a.m.-5:00 p.m. Apply with resume to: Sylvia Cruz, Alcon Laboratories, Inc., 6201 S. Freeway, Mailstop IL-20, Fort Worth, TX 76134. EOE

SR. SYSTEMS ARCHITECT

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To qualify, you must possess a BS in Computer Science or equivalent, along with 5 yrs exp. in the job offered OR 5 yrs progressive exp. as a Sr. DBA in complex IT environment building and supporting web and/or database technologies, infrastructure, and applications. 3 yrs. support and integration exp. with Infolease, APPWORX, and Informatica required.

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Software Engineer. Design, development & implementation of software applications for business processes using object-oriented methodologies. Client consultation, analysis of project requests, requirements & feasibility, & recommendation for program/project enhancements using the Rational Unified Process. Workflow documentation. Technical Environment: J2EE; IBM Websphere; UML; WASD; XML; JSP; JDBC; EJB; Servlets; Beans; Swing; Visual Age for Java; Rational Rose. Bachelor's* degree in Comp. Sci. or Eng. + 2 yrs exp in job offered or as Software Consultant or Programmer Analyst req'd. (*Associates degree in comp. eng. tech. + 2 yrs exp in software development also acceptable). Previous experience must include: J2EE; Websphere; UML. 40 hrs/wk, $72,000/yr. Must have proof of legal authority to work in the US. Send resume to Iowa Workforce Center, 215 Watson Powell Jr. Way, #100, Des Moines, IA 50309-1727. Refer to JO#: IA1101819. Employer pd ad.

Software Engineer (Siebel Implementation)

ROLES & RESPONSIBILITIES:

Lead full life cycle development, implementation and customization of applications using Siebel eConsumer Goods including performing all Siebel Administrator and assignment manager duties. Setup and configure Siebel for development, test and production environments. Direct repository and physical schema upgrades, repository management, remote administration, deployment using Packager as well as Siebel Anywhere. Manage and evolve Enterprise Integration Manager job for data mapping as well as data integration. Use Oracle and Visual Basic to maintain and develop sales and support related software. Respond to support calls from users. Support business specific process for Trade Program management. Configure Siebel application using Siebel tools. Provide expertise in designing and developing workflow based on business rules. Troubleshoot and support Siebel server and client.

REQUIRED SKILLS/EXPERIENCE: 1 year in the job offered.

REQUIRED EDUCATION: BS in Electrical or Electronics Engineering, Computer Science or related field

To apply, send resume and salary history to the following address: 1500 Valley Road, Wayne, NJ 07470. C/O Tim McConville.

bp

Lead Engineer. Req. Bach deg. in Computer Eng., Computer Sci., or related field & 5 yrs exp. in job offered or 5 yrs exp. in database & web administration. Exp. must incl. use of Microsoft SQL 2000, Windows 2000, OLAP Service, data warehouse, & IIS. Must also have exp. working on large-scale projects in database design & admin.; web server farm load balancing; & using Web Trends report, MS FrontPage, ASP programming, & Cold Fusion. Must have MCSE Windows 2000 track (Microsoft Cert. Eng.) & MCDBA (Microsoft Cert. Database Admin.) certifications. Util. knowl. of emerging technologies, incl. .NET, web services, SOAP & XML to work on large-scale projects involving database design & admin., & web admin. Design & architect comprehensive database mgmt. solutions for client environments. Use adv. technologies, incl. .NET, Microsoft SQL 2000, OLAP Service, & IIS to implement busin. solutions. Job located in Wash. D.C. Send resume to K. Russ at Resource Consultants, Inc., 2650 Park Tower Dr., Vienna, VA 22180.

Technical Architect. Reston, VA. Resp. for full project life cycle & business dvlpmt. Assist w/def'n & scope of work & design system/large modules. Daily coding. Ensure timeliness & qlty of deliverables. Provide sol'n to tech. probl. assoc. w/spec. projects. Attend all practice dvlpmt. mtgs. Define & lead internal activ. in area of focus. Utilize J2EE, .NET; Win NT/XP, Solaris; AIX, Linux; Apache Struts, Tiles; DB2, Oracle; Weblogic, Websphere, JBoss, iPlanet; Java, PL/SQL, C++, Perl, Shell scripting; clustered n-tier archit. & wireless ntwrk (802.11B, HTTP & WAP). REQ'S: Bach's (or for. equiv) in CS, Engr, or rel. fld plus 2 yrs exp in job off'd or as Sr. Systems Analyst or Systems Analyst; & 2 yrs. concurrent exp each utilizing Java & designing e-business web sites. Mail resume D.Schofield, DiData, Inc, 135 Newbury St, Framingham, MA 01701.

Computer - Sr. Software Engineer, Lexington, Massachusetts. Serve as senior contributor to design and development of software applications, including defining and implementing new component architectures and enhancements. MFC/Win32; COM/ActiveX, Visual Basic; Internationalization & Localization; Debugging & analysis of complex software. Requires Masters Degree in CS, CE, or other technical/scientific field. Will also accept a BS in CS, CE or other technical/scientific field and 5 years of progressive experience in job offered, as a software engineer, systems analyst, computer programmer, or related. Three (3) years experience in the job offered or three (3) years experience in the related occupation of systems analyst, computer programmer or related. $90,460.90 per year 40 hours per week 8:00am-5:00pm. Send cover letter and resume in duplicate to Case #200202197. Labor Exchange Office 19 Staniford St., 1st Floor, Boston, MA 02114.

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E-voting

state of Ohio [QuickLink a3860] as a "very positive report," according to company Chairman David Hart. He said it will be easy to implement the changes called for.

Similarly, Sequoia spokesman Alfie Charles said that his company's system scored well in the same Ohio review and that Sequoia has made many of the recommended changes. "We'll do whatever officials require us to do," Charles said.

Neither Diebold nor Election Systems made representatives available for comment.

Industry Members Unite

Meanwhile, six vendors — those four plus Advanced Voting Solutions Inc. and Unilect Corp. — last week responded to the controversy by banding together to form an organization called the Election Technology Council, which will address ethics and security practices, among other issues [QuickLink 43463].

"We came together because our environment has become chaotic," said Hart. "We need to be able to speak as an industry in a single voice on the areas being regulated. . . . We want to be part of the debate and tell our industry's side of the story. There's a lot of misinformation."

Still, many IT professionals engaged in the e-voting issue are troubled by the limits of computer systems' reliability.

Seattle software developer Erik Nilsson's experience writing database code in the historic 1994 South African election made him feel "like a small cog in an overwhelming and complex process," he said. Technologists have to gain an understanding of the difficulty of running elections if they are to contribute to solving software security and quality problems, he said, because "there aren't very many coders who understand elections and not very many elections people who understand code."

DAVID DILL helped to win a key vote in California.

Nilsson, who chairs the Computer Professionals for Social Responsibility working group on voting, is scathing on the subject of poor software quality in DREs. The lack of improvements to computer security since he became involved with it in 1987 has led him to conclude that for the time being, paper — that is, an audit trail outside of self-contained DRE computers — is still needed for safe elections.

> **"There aren't very many coders who understand elections and not very many elections people who understand code.**
>
> **ERIK NILSSON,** SOFTWARE DEVELOPER

Brit Williams begs to differ. The computer science professor at Kennesaw State University in Georgia is often on the opposite side of the argument from e-voting skeptics, but even his opponents credit him with running, for the state of Georgia, what may be the most thorough voting machine inspection regime in the country. While Georgia's rigorous tests have discovered unreliable units before they could be used at the polls, Williams said he trusts the machines as far as is necessary within a total security framework.

"People are looking at the security of electronic voting machines from a purely technical point of view, but security is a combination of physical, legal and procedural measures," said Williams. He said a paper audit trail isn't needed and would introduce logistical problems.

David Dill, a computer science professor at Stanford University in Palo Alto, Calif., is a recent arrival to the electronic voting discussion: He said that prior to January 2003, he wasn't deeply involved in any policy debates. But about a year ago, "it occurred to me that people were buying these machines, and nobody was minding the store," Dill said.

In addition to working to rally other technologists to his point of view via a Web site [QuickLink a3850], Dill got involved locally, in Santa Clara County, when he heard about planned purchases of DREs. He credits that controversy with raising the alert and leading to a recent victory for his group: Late last month, California's secretary of state issued a mandate calling for voter-verifiable paper systems to be added to all polling units statewide.

Ted Selker, an associate professor at MIT's Media Lab, professes to be "as worried as the next guy about security." But he maintains that verification can be provided without paper, and he has developed what he claims is a secure voting architecture that uses multiple redundant software components. Selker said IT professionals need to get involved locally, but he wants to broaden the conversation to include how technology can improve other parts of the electoral process, such as voter registration.

"In 2000, between 1 and 3 million votes were lost in registration database problems," he said. "It's the top place votes get lost, and we're not focused on this." **43521**

Heichler is editor in chief of the IDG News Service.

BEHIND THE BALLOTING

The new National Committee on Voting Integrity calls for e-voting paper audit trails:

QuickLink 43083
www.computerworld.com

Corrections

A story in last week's News section ("Las Vegas Schools Mix IP, Digital Communications") incorrectly identified the vendor that supplied switching technology to the Clark County School District in Nevada. The school system's new metropolitan-area network is based on switches made by Foundry Networks Inc. in San Jose.

Because of inaccurate information provided by The Goodyear Tire & Rubber Co., a story in the Nov. 3 issue's News section ("Goodyear Hits $100M Snag With ERP System") mistakenly said that J.D. Power and Associates provided consulting help on a faulty implementation of SAP AG's financial software.

IT Pros Encouraged to Get Involved

Regardless of their positions on the electronic voting issue, virtually all involved in the debate say IT professionals can, and should, get involved.

"Most IT people get it right away – we know how insecure machines are," said Barbara Simons, a retired IBM researcher and past president of the Association for Computing Machinery in New York. That's why Simons wants IT professionals find out what's happening in their localities – decisions on voting systems are made statewide in some areas but occur at the township level in others.

MIT associate professor Ted Selker would also like to see more technologists get involved as concerned citizens in their local jurisdictions. "We need IT professionals to volunteer to learn about elections and help local election officials," he said. "IT professionals understand the importance and difficulty of making processes that do what you want them to do."

Getting to know local election officials and gaining an understanding of their problems will give IT people credibility in the debate, according to Erik Nilsson of Computer Professionals for Social Responsibility. "Once you understand something about elections, your concerns will be better formed and consequently better received," he said. "Computer people learning something about elections, and maybe helping election people understand that they might have some knowledge gaps about computers, is a good thing."

Rebecca Mercuri, whose name has become associated with voter-verifiable paper – she's widely known for her Mercuri Method of including a paper audit trail within a DRE setup – comes by her election credentials honestly. She has been grappling with the issue of voting since she was a software developer-cum-local committee member in Bucks Country, Pa., in 1989. And she still works at the polls on election day, she said.

"This is what people can do: Go and be at the places where they are rolling out the new machines," Mercuri said. "By having the million eyes of IT professionals out there, we can find out more about these systems and can start to flag stuff."

"Look into it, debate it and come to your own conclusion," suggests Stanford University's David Dill. "Be opinion leaders in this question. This is going to have to be fought county by county and state by state."

– Elizabeth Heichler

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FRANK HAYES ■ FRANKLY SPEAKING

Not So Naughty

SANTA FROWNED at the computer screen. "Naughty," he said. "Naughty. Naughty. Naughty. Naughty. I thought this spam filter was supposed to sort out the naughty e-mails from the nice ones. But these all seem to be naughty. And why would I want to add three inches? I've been trying to take inches off for years."

"Look, boss," said the elf standing next to Santa's desk with a red and green eyeshade and a clipboard, "I don't want to be pushy, but you've got every spam cannon on the Internet aimed at you. You need to start leaning on the Delete key or you'll never be ready by the big night. Heck, a week and a half out, you haven't even decided what to give everybody in the IT business."

"I suppose you're right," Santa sighed. "What can we give Bill Gates, the man who has everything? I guess he's not one for Bratz dolls or *Cat in the Hat* toys."

"I heard he put half the audience to sleep at Comdex this year," said the elf. "Maybe some java would have helped. No, wait, Microsoft is getting rid of that, right?"

"Ho-ho," said Santa. "How about a remote-control mini race car? It says here it's the hot gift this year. Though I thought it was the hot gift *last* year. . . . "

"Focus, boss, focus," the elf said. "What about Sun's Scott McNealy? He's taking on Microsoft on the desktop."

"Yes, he's trying to get his Java Desktop System onto PCs at Wal-Mart," said Santa. "And Michael Dell has opened kiosks at big shopping malls. Some big Web-shopping boosters they are. How about some bricks and mortar for each of them?"

"Or maybe just a brick," muttered the elf. "Larry Ellison is next. He really wanted PeopleSoft this year."

"Last year, he wanted the America's Cup," said Santa. "He never gets what he wants. Let's give him copies of *Softwar* and *Everyone Else Must Fail* and *The Difference Between God and Larry Ellison*. They're all about his favorite subject. Next?"

"Hasso Plattner," said the elf. "He retired this year as top guy at SAP. He used to get up on stage with showgirls at SAP conferences, didn't he? Let's give him some new dancing shoes."

"Done," Santa said. "And who are those guys at Novell who engineered that deal to get into the Linux business? *If you knew SUSE like I know SUSE. . . .*"

"Messman and Stone," the elf said. "That does sound like a vaudeville act, doesn't it? Better give them reading glasses, so they can catch all the fine print in the lawsuit The SCO Group will throw at them. And should we give SCO's Darl McBride a lump of coal?"

"It looks like the lawyers from IBM and Red Hat are already heaping the coals on him," said Santa. "But we can give some lumps to Nicholas Carr, that self-promoter who wrote 'IT Doesn't Matter.' And to the Department of Homeland Security, which just got an F on its own security report card. And to Diebold, the automated teller machine vendor whose ATMs got infected by the Nachi worm."

"But what about all the good IT people who spent the year dealing with new regulations and offshoring and endless patches?" asked the elf. "Maybe they could use some brand-name pharmaceuticals at 70% off."

"Now who can't get his mind off junk e-mail?" said Santa. "Besides, the best present I could give them would be to do something about all the spam they spend so much time fighting and maybe give spammers a load of their own. . . ."

"Boss, I don't like that look you've got," the elf said nervously.

"I've got it!" said Santa with a none-too-jolly twinkle in his eye. "Load that old circus cannon on my sleigh, and call Hormel for some ammunition. I'm the one person who knows for sure who's naughty and nice. And if spammers want to aim spam cannons at us, I know just the spiced-meat product to fire down *their* chimneys. Ho-ho-ho!" **43486**

FRANK HAYES, *Computerworld*'s senior news columnist, has covered IT for more than 20 years. Contact him at **frank_hayes@computerworld.com**.

Do-It-Yourself Spam

Infuriated executive tells pilot fish this well-known online retailer just won't stop sending her spam. "She claimed she had written to the company asking them to stop, but every day, she received yet another e-mail," says fish. So fish sends an e-mail to the retailer's customer service group explaining the situation and asking for help – and promptly receives an automatic response. That's when the penny drops. "They weren't actively sending her anything," fish sighs. "Every time my user sent them an e-mail asking them to take her off their mailing list, she received an auto-response to the mail she sent."

SHARK TANK

That Would Explain It

User complains about the fact that she's being kicked out of the billing system every day just after 1 p.m. IT pilot fish replaces the keyboard to make sure that's not what's doing it, but finally figures it out after setting up a program that logs the user's activities. "Seems the user goes to lunch at 11 a.m., and user's boss goes at noon," fish says. "By the time the boss comes back, user hasn't done any work after lunch – and after two hours of inactivity, the system was kicking her out."

The Best Revenge

The day after this IT pilot fish is laid off, she hears from former co-workers that a new directive has come down from the big bosses: All laid-off employees are to be removed from the voice-mail system immediately. "My boss came back to them after an hour and told them the problem," fish says, "The only one who knew how to take people out of the voice-mail system – me – just got laid off. I had a hearty laugh at that one!"

Um, No

Consultant pilot fish's gig is doing installation and training for a network management package, and he thinks he's heard it all. But at the first-day meet-and-greet session at a big financial client, an executive still surprises him with his question: "If we have a computer in a closet, unplugged and not used for years, can your software find it?"

It Never Ends

It's the early 1970s, and this intern pilot fish draws the task of upgrading a program that tracks small quantities of precious metals. "The newly upgraded software could weigh scrap gold to eight-digit precision but the computer would only add it up to six digits," fish says. He rewrites the program so it performs 12-digit math, and the users are delighted – for the first month or two. "After I left," fish reports, "they went out and bought a new scale – with 14-digit precision."

FEED THE SHARK! Send your true tales of IT woe to **sharky@computerworld.com**. You'll snag a Computerworld Shark shirt if we use it. And check out the daily feed, browse the Sharkives and sign up for Shark Tank's home delivery at **computerworld.com/sharky**

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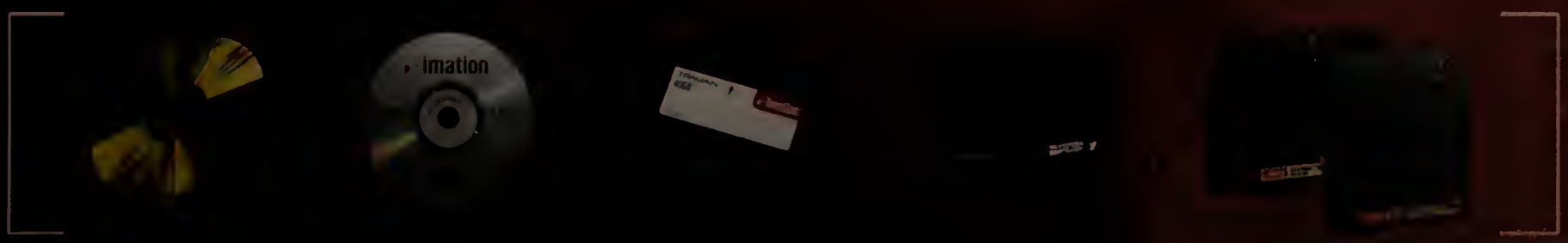

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